OPTIMIZING COGNITIVE PERFORMANCE:
THE RELATIONSHIP OF SELF-THEORY
TO THE HUMAN DIMENSION CONCEPT

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE
General Studies

by

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2015

REPORT DOCUMENTATION PAGE		*Form Approved* OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

1. REPORT DATE *(DD-MM-YYYY)* 12-06-2015	2. REPORT TYPE Master's Thesis	3. DATES COVERED *(From - To)* AUG 2014 – JUN 2015
4. TITLE AND SUBTITLE Optimizing Cognitive Performance: The Relationship of Self-Theory to the Human Dimension Concept		**5a. CONTRACT NUMBER**
		5b. GRANT NUMBER
		5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S) MAJ Douglas K. Serota		**5d. PROJECT NUMBER**
		5e. TASK NUMBER
		5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301		**8. PERFORMING ORG REPORT NUMBER**
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)		**10. SPONSOR/MONITOR'S ACRONYM(S)**
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution is Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
The U.S. Army Human Dimension Concept, published in May of 2014, presents the challenge of optimizing human performance in an increasingly complex and urbanizing world where Soldier interactions may have strategic effects. In addressing this challenge, the Human Dimension Concept presents three components of the solution: cognitive, physical, and social. This study explores the cognitive component of the solution using a qualitative, case study methodology to understand how the Army may optimize cognitive performance. Literature supports the assumption that an incremental self-theory of intelligence, also known commonly as the growth mindset, is required to optimize cognitive performance. As the Army seeks to create a culture of lifelong learning, this study explores the inclusion of self-theory within the desired outcomes of the three primary Army commissioning sources. This study finds that self-theory is not included within the guiding policies, regulations and doctrine guiding the programs of instruction at the U.S. Military Academy, the Reserve Officer Training Corps, and the Officer Candidate School.

15. SUBJECT TERMS
Optimized Cognitive Performance, Self-Theory, Mindset, Lifelong Learning

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT (U)	**b. ABSTRACT** (U)	**c. THIS PAGE** (U)	(U)	92	**19b. PHONE NUMBER** *(include area code)*

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

Name of Candidate: MAJ Douglas K. Serota

Thesis Title: Optimizing Cognitive Performance: The Relationship of Self-Theory to
the Human Dimension Concept

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The opinions and conclusions expressed herein are those of the student author and do not
necessarily represent the views of the U.S. Army Command and General Staff College or
any other governmental agency. (References to this study should include the foregoing
statement.)

ABSTRACT

OPTIMIZING COGNITIVE PERFORMANCE: THE RELATIONSHIP OF SELF-THEORY TO THE HUMAN DIMENSION CONCEPT, by MAJ Douglas K. Serota, 92 pages.

The U.S. Army Human Dimension Concept, published in May of 2014, presents the challenge of optimizing human performance in an increasingly complex and urbanizing world where Soldier interactions may have strategic effects. In addressing this challenge, the Human Dimension Concept presents three components of the solution: cognitive, physical, and social. This study explores the cognitive component of the solution using a qualitative, case study methodology to understand how the Army may optimize cognitive performance. Literature supports the assumption that an incremental self-theory of intelligence, also known commonly as the growth mindset, is required to optimize cognitive performance. As the Army seeks to create a culture of lifelong learning, this study explores the inclusion of self-theory within the desired outcomes of the three primary Army commissioning sources. This study finds that self-theory is not included within the guiding policies, regulations and doctrine guiding the programs of instruction at the U.S. Military Academy, the Reserve Officer Training Corps, and the Officer Candidate School.

ACKNOWLEDGMENTS

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ACRONYMS

ADP   Army Doctrine Publication

ADRP   Army Doctrine Reference Publication

ALC   Army Learning Concept

AR   Army Regulation

BOLC   Basic Officer Leader Course

CAC   Combined Arms Center

CAPE   Center for the Army Profession and Ethic

CCR   Cadet Command Regulation

CCTL   Common Core Task List

CG   Commanding General

DA   Department of the Army

DCG   Deputy Commanding General

EI   Emotional Intelligence

EQ   Emotional Quotient

IMT   Initial Military Training

IQ   Intelligence Quotient

FM   Field Manual

FOB   Forward Operating Base

FY   Fiscal Year

MCCoE   Mission Command Center of Excellence

NCO   Noncommissioned Officer

OCS   Officer Candidate School

OE   Operational Environment

PME	Professional Military Education
POI	Program of Instruction
ROTC	Reserve Officer Training Corps
SA	Scholastic Achievement
SOP	Standard Operating Procedures
S&T	Science and Technology
TRADOC	Training and Doctrine Command
USMA	United States Military Academy
WTBD	Warrior Tasks and Battle Drills

ILLUSTRATIONS

CHAPTER 1

INTRODUCTION

You *need* accurate information about your current abilities in order to learn effectively.[1]

— Dr. Carol Dweck, *Mindset*

Background

The U.S. Army Human Dimension Concept is currently at the center of Army

Senior Leader discussion and decision-making. Signed in May of 2014 by General David

G. Perkins, the document outlines the Army's intent to optimize human performance.[2]

The Concept was written by the Army Capabilities Integration Center under the

leadership of LTG Keith C. Walker and subsequently LTG H.R. McMaster. It is being

operationalized under the leadership of LTG Robert B. Brown at the Combined Arms

Center at Fort Leavenworth.

The topic of the human dimension was featured at the Association of the United

States Army Annual Meeting and Symposium in October of 2014. The panel, chaired by

LTG Brown, invited a wide range of discussion and information that will advance the

concept and provide new ideas for future adoption by the Army. It is a clearly a topic

with great potential, but one that requires continued study from multiple perspectives to

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[1] Carol S. Dweck, *Mindset: The New Psychology of Success* (New York: Ballantine Books, 2008), 11.

[2] Department of the Army, Training and Doctrine Command (TRADOC) Pam 525-3-7, *The U.S. Army Human Dimension Concept* (Fort Eustis, VA: Department of the Army, 21 May 2014).

enable the Army translate this concept into doctrine. The Army established several other conferences, meetings, and planning groups since the publication of the Human Dimension Concept which involve the Department of the Army Staff, Training and Doctrine Command (TRADOC) Centers of Excellence and others, all in an effort to better define the human dimension, operationalize the concept, and apply it to the operating force.

The Human Dimension Concept cannot be viewed as a stand-alone document. The current operational environment and the previous decade of war serve as the dominant influence on the themes, concepts, and purpose of the document. Joint efforts such as the Strategic Landpower Task Force attempt to build the community of practice between the Army and the Marine Corps. Recent Army modernization trends create the need to balance the force between the art and the science of war. And finally, the Army Profession and Ethic sets the parameters under which the Human Dimension Concept is bound.

The current operational environment can be described in terms of uncertainty. The Department of Defense, with the U.S. Army in the supported role, is nearing the expected completion of the second of two protracted counterinsurgencies. Our future relationships with Russia and China remain unclear. North Korea remains a clear belligerent. Threats from non-state actors challenge the basic assumptions and historic methods by which a nation-states conduct warfare within the international community. The potential for individuals and small groups to produce global effects is rising and the scope of those threats have expanded to include cyber and social media impacts. Populations are rapidly urbanizing.

Every major war fought by the United States has come as somewhat of a surprise. Western nations have an unhealthy tendency to prepare for the "good war"; the war in which they are prepared to fight and not necessarily the war in which they are most likely to fight. "The idea that the future is unpredictable is undermined every day by the ease with which the past is explained."[3] As unexpected as future wars have been, their methods have nonetheless been foreshadowed within historical events. Therefore, our current challenge is to set the conditions to adapt in agile and innovative ways such that the unpredictability and uncertainty of future warfare is minimized. The British historian Michael Howard is often cited for his statement about agility and adaptation in the face of emerging threats: "I am tempted indeed to declare dogmatically that whatever doctrine the Armed Forces are working on now, they have got it wrong. I am also tempted to declare that it does not matter that they have got it wrong so long as it can be corrected quickly."[4]

At the Joint level, the Strategic Landpower Task Force is the most recent shift in thinking towards to preeminence of the Soldier and Marine on the battlefield. The White Paper on Strategic Landpower, titled *Strategic Landpower: Winning the Clash of Wills*, was co-signed by GEN Raymond Odierno, the 38th Chief of Staff of the Army, Gen James Amos, Commandant of the Marine Corps, and ADM William McCraven, Commander of the United States Special Operations Command. This document, as

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[3] Daniel Kahneman, *Thinking, Fast and Slow* (New York: Farrar, Straus and Giroux, 2011), 218.

[4] Michael Howard and A. J. Wilson, "Military Science in an Age of Peace," *The RUSI Journal* 119, no. 1 (1974): 3-11.

indicated by the co-signatories, seeks to create unity of effort at the joint level for the study of the human domain. The human domain is first defined by MG Bennet Sacolik and BG Wayne Grigsby in their article *Special Operations Forces/ Conventional Forces Interdependence: A Critical Role in 'Prevent, Shape, Win.'* "The human domain is the totality of the physical, cultural and social environments that influence human behavior to the extent that success of any military operation or campaign depends on the application of unique capabilities that are designed to fight and win population-centric conflicts."[5]

GEN (Ret) Cone highlights the importance of the emphasis on the human domain and its role in Strategic Landpower during his address to the Royal United Services Institute's Land Warfare Conference in June of 2013. A fundamental purpose of the effort is to ensure that the effective partnerships developed between special operations forces and conventional forces is not lost upon the conclusion of hostilities in Iraq and Afghanistan. A key lesson learned in his experience is that special operations forces "start this discussion by understanding people and cultures and then develop their understanding of technology and systems. We often times go in the opposite direction."[6]

<u>Historical Context</u>

The Human Dimension Concept has historical context, specifically on two important points. The first version of the Human Dimension Concept was published in

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[5] Bennet J. Sakolic and Wayne W. Grigsby, Jr, "Special Operations/Conventional Forces Interdependence: A Critical Role in 'Prevent, Shape Win,'" *Army Magazine* (June 2012): 40.

[6] Robert W. Cone, *Operationalizing Strategic Landpower* (Fort Eustis, VA: United States Army Training and Doctrine Command, June 2013), 6.

June of 2008 under the leadership of GEN William S. Wallace. It opened the door to exploring the ideas and the means to shift the general trends of Army modernization efforts away from technological solutions. The 2008 version defines the human dimension as encompassing "the moral, physical, and cognitive components of Soldier, leader, and organizational development and performance essential to raise, prepare, and employ the Army in full spectrum operations."[7] This definition is acceptable based on the context of the operating environment at the time. The conflict in Iraq had recently experienced a tipping point at the time of the first publication in 2008. GEN Petraeus' "surge" of forces and the associated publication of FM 3-24 Counterinsurgency[8] set the conditions to change the paradigm of our FOB-based Army. Mine Resistant Ambush Protected Vehicles, Unmanned Aerial Vehicles, Wolfhound Systems, the Minehound, the Thor, the RAID Tower, the Aerostat Balloon, the Individual Gunshot Detection System, the Counter Remote-Controlled IED Electronic Warfare system, etc. etc. could no longer be the sole focus of Army innovators. Innovation turned from technology to theory as leaders throughout the neighborhoods of Iraq developed creative ideas and learned new techniques to live among the people. The shift was innately human and met with profound success, validating the premise of the Human Dimension Concept and reinforcing GEN Cone's point about understanding people.

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[7] Department of the Army, Training and Doctrine Command (TRADOC) TRADOC Pam 525-3-7, *The U.S. Army Concept for the Human Dimension in Full Spectrum Operations* (Fort Eustis, VA: Department of the Army, June 2008), 1.

[8] The Army has since published a new edition of FM 3-24 *Insurgencies and Countering Insurgencies* in May 2014.

As important as this paradigm shift would be, the 2008 Human Dimension Concept was incomplete. For one, the human dimension was not defined in concrete terms. The concept identifies what it "encompasses". The proposed solution to the problems our Soldiers faced in the OE was little more than a call for additional emphasis and research. "The Army will need to increase its focus on the human dimension in both the operational Army and the Generating Force in order to meet future challenges and operate in an era of persistent conflict."[9] To increase focus is to talk more and do less. "The Army must widen the community of practice in the human dimension to continue to explore how we can best recruit, train, and retain an All-Volunteer Force that can operate across the range of military operations." Dominant words and descriptions of a successful Army at war are lacking. The solution is somewhat risk averse. The Concept's description of the operating environment is ripe with uncertainty and challenges in a rapidly urbanizing, complex world. And yet the solution synopsis is concerned not with winning wars in that environment, but recruiting, training, and maintaining an "All-Volunteer Force."

The second important historical context is the continuing challenge of balancing the art of command and the science of control. One is very much related to the scientific approach to warfare as espoused by the writing of Antoine-Henri Jomini and the other championed by the accounts of Carl von Clausewitz. Both men presented theories of warfare as they personally experienced it and while reflecting on the Prussian loss to the Napoleonic Grande Armée. Jomini, having experienced warfare from the perspective of

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[9] Department of the Army, TRADOC Pam 525-3-7, ii.

the victor, described warfare in terms of principles and maxims. His theories serve as the basis for our current doctrinal characteristics of the offense and the "science" of warfare.[10] Jomini characterized warfare as a science such that success or failure in battle could be measured by the degree to which future leaders adhere to his rules.

Clausewitz described warfare in terms of the paradoxical trinity as he attempted to define the nature of war and its tendencies.

> As a total phenomenon its dominant tendencies always make war a paradoxical trinity- composed of primordial violence, hatred, and enmity, which are to be regarded as a blind natural force; of the play of chance and probability within which the creative spirit is free to roam; and of its element of subordination, as an instrument of policy, which makes it subject to reason alone. The first of these three aspects mainly concerns the people; the second the commander and his army; the third the government.[11]

Clausewitz further expands on the interaction of these three forces by calling for balance. "Our task therefore is to develop a theory that maintains a balance between these three tendencies, like an object suspended between three magnets."[12]

Recognizing that both men have fundamental theories that apply to our modern Army it is valuable to recognize that a certain balance these fundamental theories is ideal. Just as Clausewitz calls for balance within his trinity, it is logical, to call for a certain level of balance between the magnets of the trinity and the maxims of the scientist. LTG McMaster, in his address to the Command and General Staff College on 14 August 2014,

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[10] Department of the Army, Army Doctrine Reference Publication (ADRP) 3-90, *Offense and Defense* (Washington, DC: Department of the Army, August 2012), 3-1.

[11] Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 89.

[12] Ibid.

argued for the recognition of the nature and the continuities of war. As outlined, his continuities of war are (1) war as an extension of politics (2) war is profoundly human (3) war is profoundly uncertain and (4) war is a contest of wills.[13] LTG McMaster is clearly attempting to highlight the importance of Clausewitz's theories to the more than one thousand field grade officers present at the event in order to further shape the future Army.

Army trends of innovation over the last decade of war have been more scientific, maxims-based Jominian. Senior leaders communicate command messages that are based on the art of war while subordinates seem to execute guidance in search of absolutes. The Human Dimension Concept is very Clausewitzian by design. It is challenging to succinctly define; it is theoretical, and in its current form, much more applicable at the strategic and operational levels of war. As warfare is innately human and tactical, the Human Dimension Concept must expand to better define what it means to be human, to apply those findings to enable the Soldier, and to focus its application on methods to optimize human performance at its most basic level. At the most fundamental level, the Human Dimension Concept is an effort to find an asymmetric, non-technological relative advantage in today's complex operating environment to avoid the "bloody process of mutual education."[14]

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[13] The Continuities of War as outlined by LTG McMaster are captured from the author's notes while present during the event.

[14] MacGregor Knox and Williamson Murray, eds., *The Dynamics of Military Revolution, 1300-2050* (New York: Cambridge University Press, 2001), 152.

The 2014 Human Dimension Concept

The 2014 publication of the Human Dimension Concept brings significantly

clarity than its predecessor. It provides a framework of guidance and a logic map which

enables capabilities developers to work towards operationalizing the concept. Most

importantly, it introduces the Army to the idea of optimizing human performance. The

idea represents a significant undertaking for an Army of over 1.2 million Soldiers and

civilians in the active, reserve, and national guard components, especially in a time of

fiscal austerity and uncertainty in the operational environment.[15]

The 2014 publication is a departure from the 2008 version in several ways. "[The]

concept redefines the parameters of the human dimension as encompassing the cognitive,

physical, and social components. It includes all aspects of Soldier, Civilian, leader, and

organizational development and performance essential to raise, prepare, and employ the

Army in unified land operations."[16] The purpose is redefined from maintaining an "All-

Volunteer Force" to providing "a framework for how the future Army must select,

develop, sustain, and transition Soldiers and Army Civilians to prevent, shape, and win in

the 21st century."[17]

The human dimension is redefined as the "cognitive, physical, and social

components of Soldier, Army Civilian, leader, and organizational development and

performance essential to raise, prepare, and employ the Army in unified land

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[15] This figure is referenced from the Force Management System Website (FMSWeb), accessed 14 May 2015, www.fmsweb.army.mil.

[16] Department of the Army, TRADOC Pam 525-3-7, 5.

[17] Ibid.

operations."[18] It further defines optimizing human performance as "the process of applying knowledge, skills, and emerging technologies to improve and preserve the capabilities of Department of Defense personnel to execute essential tasks."[19]

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The Combined Arms Center White Paper
on the Human Dimension

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The Combined Arms Center White Paper on the Human Dimension outlines the Army's strategy for operationalizing the Human Dimension Concept through an ends-ways-means operational approach with three lines of effort: cognitive dominance, realistic training, and institutional agility. The CAC White Paper defines the "end" as optimized human performance and the endstate as "Army leaders are trusted professionals of character who demonstrate comprehensive improvement of knowledge, skills, and attributes in education, training, and experience to optimize and sustain an individual's ability to succeed at any assigned mission as part of a trusted team."[20] The White Paper establishes three methods to assess the strategy: the Human Dimension Council, a three-star general officer committee; the Institutional Army Warfighting Assessments, a "program of testing and self-assessment" by the institutional Army; and

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[18] Ibid., 33.

[19] Ibid.

[20] United States Army Combined Arms Center, *Human Dimension White Paper: A Framework for Optimizing Human Performance*, October 2014, 13, accessed 14 May 2015, usacac.army.mil/sites/default/files/documents/cact/HumanDimensionWhite Paper.pdf.

the Human Dimension Capability Development Task Force, led by the Mission Command Center of Excellence (MCCoE).[21]

The Army Profession and Ethic

As a final point of context, it is important to frame the Human Dimension Concept as inextricably linked to the Army Profession and Ethic. ADP 1 *The Army* and ADRP 1 *The Army Profession* succinctly describe the Army Profession. As effective as these publications may be at describing a Soldier, none succinctly define a Soldier. This subtle omission is as relevant and analogous as the challenge of clearly defining what it means to be human. In 2011, the Army identified the need to more clearly and definitively define the Army Ethic in doctrine and to champion those principles while describing Army Professionals.[22] In doing so, the Army is making strides toward defining what it means to be a Soldier.

The effort resulted in the publication of The Army Ethic White Paper in July of 2014. In the forward of the Army Ethic White Paper, GEN Odierno states that "the Army should be the nation's leading institution for human capital and ethical development. To become that leader, we must intensify our understanding of what it means for the Army to be a Profession. The recent publication of ADRP 1, *The Army Profession*, brought us a long way in achieving that understanding, but we must do more."[23]

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[21] Ibid., 23-24.

[22] Robert W. Cone, U.S. General, and Commanding General, *The Army Ethic White Paper* (Fort Eustis, VA: US Army Training and Doctrine Command, July 2014), 1.

[23] Ibid., i.

The Army Ethic White Paper proposes the definition of the Army Ethic in three components under the banner of Trustworthy Army Professionals: Honorable Servants of the Nation- Professionals of Character, Military Experts- Competent Professionals, and Stewards of the Army Profession- Committed Professionals.[24] The Human Dimension Concept and its associated operational approach are therefore subordinate to the principles established in the Army Ethic White Paper. One must assume that to optimize human performance, the Army will do so within the definition and framework of the Army Profession and Ethic.

Statement of the Problem

How does the Army optimize cognitive performance? The Army is easily the largest organization in the Department of Defense, and even the United States Government. It is innately bureaucratic and must be so to manage such a diverse force of that size. At the same time, the Army is arguably the most practiced department in creating unity of effort. Our cultural norms are instilled in basic trainees and young officers. They are reinforced throughout all commands, centers and schools such that Soldiers become members of a team; a small part of a purpose greater than their own. This inculcation of the values, beliefs and norms of our Army Profession towards a shared acceptance of the Army Ethic is arguably the most important function of our organization.

This trend towards centralized operations comes with risk which is in theory mitigated by the adoption of the mission command philosophy as a guiding principle of

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[24] Ibid., 11.

leadership. The goal of optimizing human performance is an additional effort to mitigate the trend of centralization. So, what's the greatest risk to optimizing cognitive performance? This study will argue that the adoption of an entity self-theory of intelligence (a fixed mindset) by Army leaners is the greatest risk to optimizing cognitive performance, especially when considered in concert with the goal of creating a culture of lifelong learning.

Dr. Carol Dweck explores the concept of self-theory as two conflicting perspectives on human experience. She differentiates between opposing and exclusive self-theories known as the fixed mindset and the growth mindset as well as their effect on the predisposition of people to learning in her book *Mindset: The New Psychology of Success.* She asks, "What are the consequences of thinking that your intelligence or personality is something you can develop, as opposed to something that is a fixed, deep-seated trait?"[25] Dr. Dweck defines the fixed mindset as "believing that your qualities are carved in stone"[26] and the growth mindset as "the belief that your basic qualities are things you can cultivate through your efforts."[27] Dr. Dweck argues that "the view you adopt for yourself profoundly affects the way you lead your life."[28]

These two concepts create a dichotomy that strikes at the heart of profoundly rooted beliefs in society, that humans have a fixed capacity for increased intelligence,

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[25] Dweck, *Mindset*, 4.

[26] Ibid., 6.

[27] Ibid., 7.

[28] Ibid., 6.

physical fitness, social standing or any other characteristic or that they may continuously

increase their capabilities and capacity with respect to that same characteristic. That most

basic and often unconscious, unrecognized choice has either predisposed a person to

lifelong learning or limited their capacity, thereby placing a ceiling or a cap on their

potential. In short, a fixed mindset will not lead to a level of performance that may be

considered optimal. Dr. Dweck further demonstrates the risk that a fixed mindset brings

to an organization:

> When bosses become controlling and abusive, they put everyone into a fixed mindset. This means that instead of learning, growing, and moving the company forward, everyone starts worrying about being judged. It starts with the bosses' worry about being judged, but it winds up being everybody's fear about being judged. It's hard for courage and innovation to survive a companywide fixed mindset.[29]

This has profound implications for the U.S. Army, especially in light of the recent

focus on toxic leadership and its effect on command climate. The potential for fixed

mindset leaders to thwart courage and hinder innovation is the single greatest

organizational risk to the goal of optimizing cognitive performance. "The lesson is:

Create an organization that prizes the development of ability – and watch the leaders

emerge."[30]

As the Army's primary leadership factories, the three primary, federal

commissioning sources serve as a prime target for the study of self-theory. Creating

leaders with a growth mindset and an understand of the impacts of self-theory will have

profound and lasting effects on the organizational Army and will span across the tactical,

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[29] Ibid., 124.

[30] Ibid., 142.

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operational, and strategic levels of war both in garrison and within the operational environment.

Research Questions

Are Army initial-entry commissioning programs incorporating self-theories of intelligence into their curriculum and course outcomes in order to optimize cognitive performance? How can Army assessments encourage the development of a growth mindset?
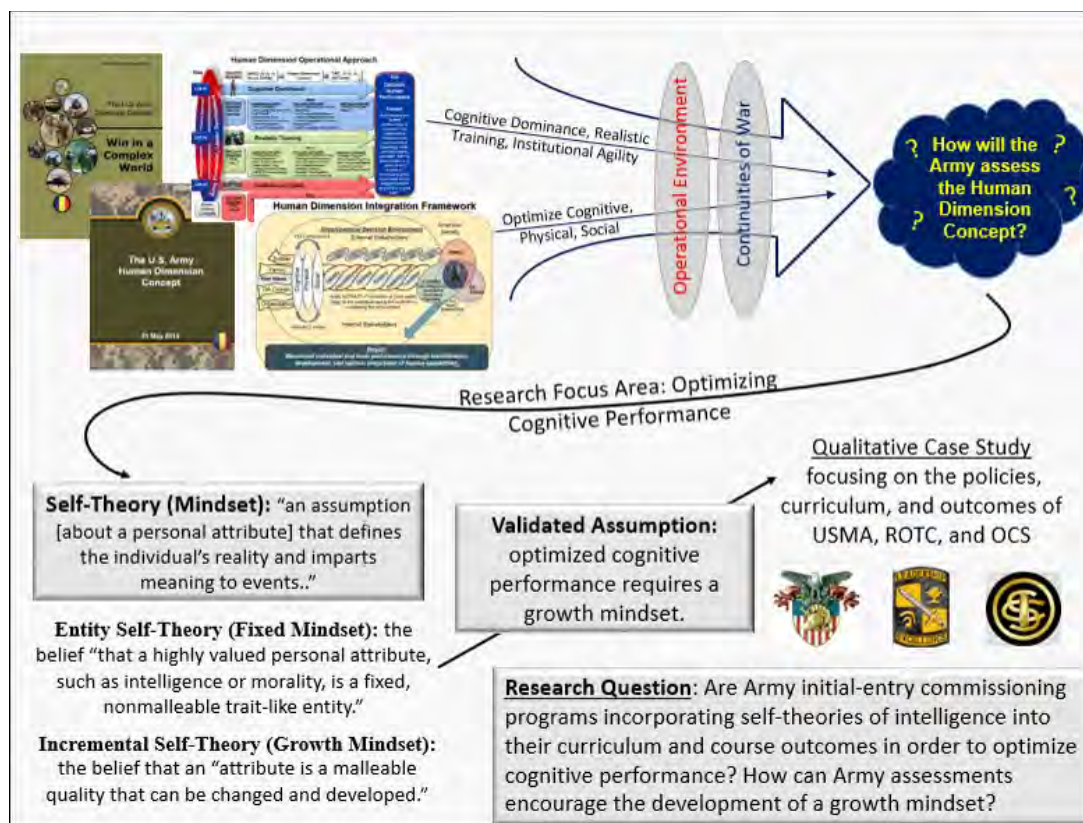
Figure 1.   Thesis Logic Map

Source: Created by author. Carol S. Dweck, Chi-yue Chiu, and Ying-yi Hong, "Implicit Theories and Their Role in Judgments and Reactions: A Word from Two Perspectives," *Psychological Inquiry* 6, no. 4 (1995): 267-268.

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Research Design

This study will use a qualitative, case study design methodology based on the techniques and lessons outlined in Dr. John W. Creswell's book *Research Design, Qualitative, Quantitative, and Mixed Methods Approaches,* 4th ed.[31] This study will adapt Dr. Creswell's methods based on the counsel and mentorship of the research committee for this project and the faculty of the Department of Graduate Degree Programs, U.S. Army Command and General Staff College.

Assumptions

This study assumes that learners with a fixed mindset of intelligence are incapable of optimizing cognitive performance. A review of literature will demonstrate the validity of this assumption. However, this assumption is necessary as the intent of this study is not to prove or disprove the theory, but instead to understand the concept of self-theory is it relates to the Human Dimension Concept.

Definition of Terms

Adaptive Learning- a method that endeavors to transform the learner from a passive receptor of information to a collaborator in the educational process.[32]

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[31] John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 4th ed. (Thousand Oaks, CA: Sage, 2014).

[32] Department of the Army, Training and Doctrine Command (TRADOC), TRADOC Pam 525-8-2, *The U.S. Army Learning Concept for 2015* (Fort Eustis, VA: Department of the Army, January 2011), 61.

Big Five Personality Traits or Factors include neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness.[33]

Campaign of Learning- An integrating process that focuses learning on critical operational issues, identifies for the community priority army warfighting challenges and questions to be answered, reduces unnecessary redundancies across learning activities (with joint, capabilities needs assessments, studies, wargames, and others), be adaptable to support quick-turn assessments, and adopt senior leader investment and approval.[34]

Competency- A cluster of related knowledge and skills that affect a major part of an individual's job (a role or responsibility), that correlates with performance on the job, that can be measured against accepted standards and that can be improved via training and development.[35]

Entity Self-Theory (the fixed mindset)- the belief "that a highly valued personal attribute, such as intelligence or morality, is a fixed, nonmalleable trait-like entity."[36]

Incremental Self-Theory (the growth mindset)- the belief that an "attribute is a malleable quality that can be changed and developed."[37]

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[33] Paul M. Muchinsky, *Psychology Applied to Work: An Introduction to Industrial and Organizational Psychology*, 10th ed. (Summerfield, NC: Hypergraphic Press, 2012), 107.

[34] Department of the Army, TRADOC Pam 525-8-2, 62.

[35] Ibid.

[36] Carol S. Dweck, Chi-yue Chiu, and Ying-yi Hong, "Implicit Theories and Their Role in Judgments and Reactions: A World from Two Perspectives," *Psychological Inquiry* 6, no. 4 (1995): 267.

[37] Ibid.

Self-efficacy- an individual's confidence in the ability to succeed at a task or to reach a goal.[38]

Self-theory- "an assumption [about a personal attribute] that defines the individual's reality and imparts meaning to events."[39]

Total Army- The composite of Active, Reserve, and National Guard components included uniformed and civilian service members.

Limitations

This study will be limited to exploring the published literature on the topics of the fixed and growth mindset and published literature and Army policies establishing course curriculums and graduation requirements of the United States Military Academy, the Reserve Officer Training Corps, and the Officer Candidate School. This limitation is appropriate as it matches the level of publication and the scope of influence of the Human Dimension Concept. In other words, focusing this study on individual courses at USMA or specific ROTC Battalions would be counter to the goal of relating self-theory to optimized cognitive performance as applicable to the Total Army. Focusing on Army regulations, published TRADOC concepts, and policies that are applicable to USMA, ROTC, and OCS as a whole will meet this intent.

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[38] Department of the Army, TRADOC Pam 525-8-2, 62.

[39] Dweck, Chiu, and Hong, 268.

Role of the Researcher

The researcher is the primary tool of this study, which will focus on published Army documents in the form of Army concepts, doctrine, policies, regulations, and training guidance. The intent of this study is to explore the concepts of self-theory and cognitive performance in the words of the Army at the institutional level. Surveys and direct interviews will not be conducted as they will speak to what Army institutions may do in the future as opposed to current practice.

Expected Impact and Significance of the Study

This study intends to build on the research of an emerging concept that will influence Soldiers and DA Civilians throughout the Army. Published research on the Human Dimension is relatively sparse as the concept was published in May of 2014 and the CAC White Paper was published in October of 2014. The majority of existing literature on the topic of self-theory is primarily focused on research supporting the development of the growth mindset in school-aged children with a few studies focused on identifying the impacts of self-theory in businesses and industry. Two studies explore concepts related to self-theory while focusing on the U.S. Army, but none directly address self-theory from a military perspective or in attempts to relate self-theory to military learning outcomes. This research will add to the body of literature to further understand the impact of self-theory to the outcomes of the Human Dimension Concept.

Statement of Purpose

The purpose of this case study is to understand the concept of self-theory, also known commonly as the fixed and the growth mindset, as it relates to the goal of

optimizing cognitive performance as outlined in the U.S. Army Human Dimension

Concept. This study will explore the polices, curriculum outcomes, and commissioning

requirements of the United States Military Academy, the Reserve Officer Training Corps,

and the Officer Candidate School along with the findings of published academic and

industry studies of self-theory.

Self-theory is defined as "an assumption [about a personal attribute] that defines

the individual's reality and imparts meaning to events."[40]

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[40] Dweck, Chiu, and Hong, 268.

CHAPTER 2

LITERATURE REVIEW

The moment a leader allows himself to become the primary reality people worry about, rather than reality being the primary reality, you have a recipe for mediocrity, or worse.

— Jim Collins, *Good to Great*

Institute order and rigid structure, and while you my achieve standardization, you'll squelch creativity. Where creativity is valuable, learning to accept chaos is a must.

— Ori Brafman and Rod Beckstrom, *The Starfish and the Spider*

Purpose

The purpose of this study is to understand the concepts of the fixed and the growth mindset as they relate to the U.S. Army Human Dimension Concept. The purpose of this chapter is to review the significant, relevant literature from the Army as it relates to the cognitive component of the Human Dimension Concept, and to understand the facts, theories and relevant factors that influence the fixed and the growth mindset as it relates to intelligence.

This chapter begins by exploring what the Army defines as the cognitive component and explores the relationship of the cognitive component to the Army Learning Concept for 2015. The chapter then shifts to a review of academic and research literature on the concepts of intelligence quotient, emotional quotient, self-theory, the effects of testing on mindset, and an interesting concept defined as "grit". The chapter concludes with a review of literature that explains the importance of understanding mindset from the perspective of a leader, educator, or trainer.

The Cognitive Component

General David Perkins highlights the importance of the cognitive component of the human dimension in the forward of the Human Dimension Concept. "To achieve this goal, we must employ innovative techniques that enable our professionals to learn faster, retain information better, and perform at even higher levels."[41] In doing so, he has focused less on the physical and social components and has set the stage for the cognitive as the primary component of the solution to the challenges of the human dimension concept.

Chapter 1 of the Human Dimension Concept distinguishes physical objectives from human objectives, but maintains them both on equal footing and equal importance. "By 2025, the Army must be leaner, smarter, more lethal, and flexible."[42] Of key importance to this study are these two aspects of "smarter" and "flexible". This statement raises some questions. What elements of our current training and educating strategies that create a smarter Soldier, especially considering that leader development remains a top priority? What institutions may need to adjust current practice to reach this goal?

In Chapter 2, the Human Dimension Concept contextualizes its purpose by introducing numerous, multifaceted threats while highlighting fiscal austerity within the context of the "rising velocity of human interaction"[43] which will challenge a Soldier's

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[41] Department of the Army, TRADOC Pam 525-3-7, iii.

[42] Ibid., 6.

[43] Department of the Army, *Strategic Landpower: Winning the Clash of Wills*, October 2013, accessed 14 May 2015, http://www.tradoc.army.mil/FrontPageContent/ Docs/Strategic%20Landpower%20White%20Paper.pdf, 8.

cognitive ability to "completely understand events or to predict the aftermath of any incident."[44] The investment in science and technology has been the primary means of Army modernization of the past, but this concept calls for the reprioritization of those efforts to focus on the human element. "S&T initiatives and research efforts must include a greater investment in the human and behavioral sciences such as medicine, psychology, economics, sociology, anthropology, and political science."[45]

The decisive impact of the squad in today's operational environment highlights the importance of a human solution to an increasingly human threat. This prioritization effort will be challenged when applied to the trends of recent Army recruits. The decline of education levels, physical capabilities, dietary choices, and social norms trending among Army recruits is a poor match for a technological solution.

Chapter 3 of the Human Dimension Concept identifies optimized job performance, optimized holistic health and fitness, and maximized Army professionals as the three outcomes of the concept and further defines solutions in terms of cognitive, physical, and social components. "The learning sciences are foundational to understanding the relationship between these components."[46]

The cognitive component is defined as "the mental activity pertaining to the act or process of perception, memory, judgement, and reasoning."[47] Accordingly, it may be

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[44] Department of the Army, TRADOC Pam 525-3-7, 7.

[45] Ibid.

[46] Ibid., 12.

[47] Ibid.

"measured in various ways such as intelligence and aptitude tests."[48] A learner-focused approach is highlighted and couched in terms of technology enablers to assist recruits that are expected to enter the Army with marginal cognitive skills.

The Human Dimension Concept references the Army Learning Model with its five components; salient among these are two components: a learning culture and the progression of individual competencies. "Learning starts with baseline assessments of each individual and each unit. These assessments are reinforced over time with periodic and gateway assessments to ensure individual learning and unit learning are on track."[49] This statement invites the implication that the Army will define what should be learned and supervise the progress of Soldiers' learning of those tasks. This statement may be counter to the goal of optimizing cognitive performance. It implies an endstate associated with a training, but should not be applied in the same manner to the goals of education.

Published in 2001 under the leadership of GEN Martin Dempsey as the TRADOC Commander, the U.S. Army Learning Concept for 2015 "focuses on the Active Army and Reserve component individual learning in initial military training (IMT), professional military education (PME), and functional courses."[50] It identifies problems with past techniques of training and education that were based on throughput to support the needs of a deployed force. It proposes a redesigned continuous, adaptive learning model based

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[48] Ibid.

[49] Ibid., 13.

[50] Department of the Army, TRADOC Pam 525-8-2, 5.

on the integration of adult learning methodology and technology to develop Soldiers into lifelong learners.

The ALC 2015 acknowledges the challenges of integrating Soldiers who may not have experienced an optimal learning environment in their past educational institutions. It addresses the almost ubiquitous presence of technology in Soldiers lives and attempts to use that effect to compliment Army learning efforts. Two themes emerge under the banner of operational adaptability: the development of improved learning experiences through outcome-oriented strategies and the requirement for technology to bring learning to the point of need.[51] The concept further identifies nine 21st Century Soldier Competencies (see figure 2) which highlights worthy outcomes and complements Army objectives by way of adult education methods.

21st Century Soldier Competencies

- Character and accountability
- Comprehensive fitness
- Adaptability and initiative
- Lifelong learner (includes digital literacy)
- Teamwork and collaboration
- Communication and engagement (oral, written, negotiation)
- Critical thinking and problem solving
- Cultural and joint, interagency, intergovernmental, and multinational competence
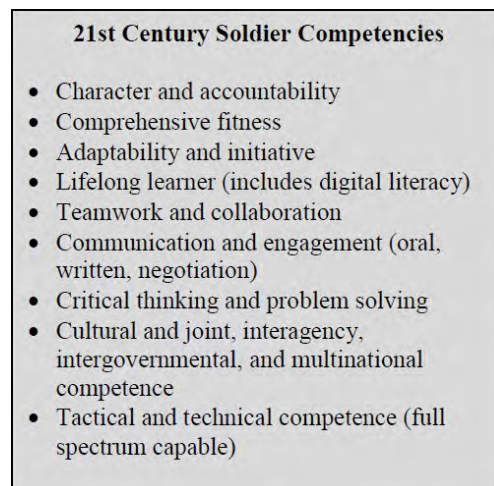- Tactical and technical competence (full spectrum capable)

Figure 2.   21st Century Soldier Competencies

Source: Department of the Army, Training and Doctrine Command (TRADOC), TRADOC Pam 525-8-2, *The U.S. Army Learning Concept for 2015* (Fort Eustis, VA: Department of the Army, January 2011), 18.

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[51] Department of the Army, TRADOC Pam 525-8-2, 17.

The ALC 2015 continues by outlining ten instructional guidelines that are applicable "across all cohorts and echelons,"[52] and further identifies three "first steps toward a learner-centric model."[53]

First Steps Toward a Learner-Centric Model
- Convert most classroom experiences into collaborative problem-solving events led by facilitators (vs. instructors) who engage learners to think and understand the relevance and context of what they learn.
- Tailor learning to the individual learner's experience and competence level based on the results of a pre-test/assessment.
- Dramatically reduce or eliminate instructor-led slide presentation lectures and begin using a blended learning approach that incorporates virtual and constructive simulations, gaming technology, or other technology-delivered instruction.
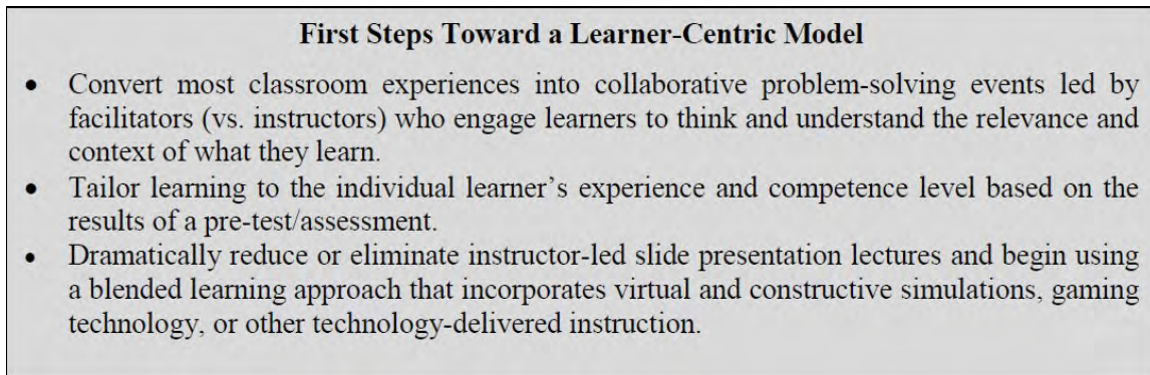
Figure 3.   First Steps Toward a Learner-Centric Model

Source: Department of the Army, Training and Doctrine Command (TRADOC), TRADOC Pam 525-8-2, *The U.S. Army Learning Concept for 2015* (Fort Eustis, VA: Department of the Army, January 2011), 30.

While it can be argued that the ALC for 2015 has realized many of its intended outcomes, all greatly beneficial to the Soldier and the advancement of Army education, the concept has room for improvement in the area of setting the conditions for Soldiers to optimize cognitive performance while learning. The concept does not address the potential to positively predispose or prime Soldiers to adopt a mindset of lifelong learning and the natural subsequent effect that effort may have on the campaign of learning. This study will demonstrate that teaching the lessons of self-theory towards the

[52] Department of the Army, TRADOC Pam 525-8-2, 25.

[53] Ibid., 30.

development of a growth mindset should be a foundational first step of the Army

Learning Concept.

IQ and EQ

IQ, or intelligence quotient, and EQ, or emotional quotient and often referred to as

emotional intelligence, are an appropriate starting points for deeper exploration. As this

study seeks to remain focused on the self-theory of intelligence as it relates to the

cognitive component of the solution, it is valuable to explore IQ and EQ as the two

foundational elements of overall intelligence in an effort to determine if they are

malleable.

IQ was thought for years to be a fixed trait. Richard Nisbett argues that the 1994

book *The Bell Curve* caused society to draw incorrect conclusions as to the nature of IQ.

> The conclusions that many people drew from the book were that IQ tests are an
> accurate and largely sufficient measure of intelligence, that IQ is primarily
> genetically controlled, that IQ is little influenced by environmental factors, that
> racial differences in IQ are likely due at least in part, and perhaps in large part, to
> genetics, and that educational and other interventions have little impact on IQ and
> little effect on racial differences in IQ.[54]

Nisbett argues that these conclusions are wrong. He explains the many different

factors that influence the increase of IQ such as schooling, the learning environment,

biological factors, social factors, and others. His point however, is not to argue against

the validity of the IQ test or its uses but more to contextualize best practices. "It's

important to remain vigilant for misuse of scores on tests of intelligence or any other

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[54] Richard E. Nisbett, "What Teachers Need to Know about IQ," *The Education Digest* 79, no. 7 (March 2014): 4, accessed 14 May 2015, http://search.proquest.com/docview/1506936542?accountid=28992.

psychological assessment, and to look for possible biases, but intelligence test scores

remain useful when applied in a thoughtful and transparent manner."[55] He goes on to say

that "measuring intelligence is essential to figuring out how to increase it."[56]

In a study of 144 school children, Dr. E. Glenn Schellenberg found that music

lessons contributed to greater increases in full-scale IQ compared with two control

groups.[57] In a study of 1817 Chilean high school graduates, Ivanovic et al. found that "(1)

independently of [socio-economic status], high-school graduates with similar IQ have

similar variables of nutritional status, brain development and [scholastic achievement];

(2) past nutritional status, brain development, child IQ and SA are strongly and

significantly inter-related."[58] In a study of 966 individual twins, Brant, Corley, and

DeFries found that "it is unlikely that there are dramatic environmental influences that

only highly intelligent children experience, and more likely that development of high

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[55] Ibid, 5.

[56] Ibid.

[57] E. Glenn Schellenberg, "Music Lessons Enhance IQ," *Psychological Science* (*Wiley-Blackwell*) 15, no. 8 (August 2004): 511-514, accessed 28 March 2015, http://fw8pk7vf4q.search.serialssolutions.com/?ctx_ver=Z39.88-2004&ctx_enc=info %3Aofi%2Fenc%3AUTF-8&rfr_id=info:sid/summon.serialssolutions.com&rft_val_fmt= info:ofi/fmt:kev:mtx:journal&rft.genre=article&rft.atitle=Music+Lessons+Enhance+IQ& rft.jtitle=Psychological+Science+[H.W.+Wilson+-+SSA]&rft.au=Schellenberg%2C+E. +Glenn&rft.date=2004-08-01&rft.pub=H.W.+Wilson+-+Social+Science+Abstracts&rft. issn=0956-7976&rft.eissn=1467-9280&rft.volume=15&rft.issue=8&rft.spage=511&rft. externalDocID=785364081&paramdict=en-US.

[58] Daniza M. Ivanovic, Boris P. Leiva, Hernán T. Pérez, Atilio F. Almagià, Triana D. Toro, María Soledad C. Urrutia, Né Inzunza, and Enrique O. Bosch, "Nutritional Status, Brain Development and Scholastic Achievement of Chilean High-School Graduates from High and Low Intellectual Quotient and Socio-Economic Status," *The British Journal of Nutrition* 87, no. 1 (January 2002): 81, accessed 14 May 2015, http://search.proquest.com/docview/213836681?accountid=28992.

cognitive ability comes from quantitatively better engagement with or access to, available educational materials."[59]

EQ was first defined in the early 1990s. Together with IQ, they serve as the foundation of overall intelligence. EQ may be defined as "a construct that reflects a person's capacity to manage emotional responses in social situations."[60] Another definition describes EQ in terms of competencies. "Emotional intelligence consists of adaptive emotional functioning involving inter-related competencies relating to perception, understanding, utilizing and managing emotions in the self and others."[61] This second definition has great value to this study as it includes the ability to use and manage EQ.

Dr. Muchinsky argues in his textbook, *Psychology Applied to Work*, that EQ and IQ are dependent variables within the larger domain of intelligence. In citing a study by Joseph and Newman, he states that "emotional intelligence is positively correlated with performance for high emotional labor jobs."[62] In a summary study of most significant research on EQ, Schutte et al., found that the aspects of EQ, including emotional

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[59] Angela M. Brant, Brett C. Haberstick, Robin P. Corley, Sally J. Wadsworth, John C. Defries, and John K. Hewitt, "The Developmental Etiology of High IQ," *Behavior Genetics* 39, no. 4 (July 2009): 393-405, accessed 14 May 2015, http://search.proquest.com/docview/229017944?accountid=28992, 403.

[60] Muchinsky, 124.

[61] Nicola S. Schutte, John M. Malouff, and Einar B. Thorsteinsson, "Increasing Emotional Intelligence through Training: Current Status and Future Directions," *International Journal of Emotional Education* 5, no. 1 (April 2013): 56-72, accessed 15 May 2015, http://search.proquest.com/docview/1491267200?accountid=28992, 56.

[62] Muchinsky, 125.

intelligence ability, emotional self-efficacy, and characteristic (trait) emotional

intelligence had a positive correlation with greater subjective well-being, better mental

and physical health, better relationships, better work outcomes, and the Big-Five

personality traits (neuroticism, extraversion, openness to experience, agreeableness, and

conscientiousness).[63] In summary, IQ matter greatly when attempting to determine what

capabilities and intellectual capacity a person may have, but EQ contributes significantly

more to the achievement of overall success in work and in life when a person is applying

their IQ to a task.

Of note to this study is the impact on increased academic achievement and better

work outcomes, but most important is the fact that EQ may be developed and trained. It is

not a fixed trait. Schutte et al. found that "the results of several studies indicate that

emotional intelligence training may have the potential to improve functioning in realms

such as work, academic functioning, life satisfaction, mental health, physical health, and

personal relationships."[64] Intrinsic and extrinsic factors associated with Soldiers' learning

will lead to improved IQ and EQ and will directly correlate with increased organizational

performance. This finding directly supports the goal of optimizing cognitive

performance.

<center>The Fixed and the Growth Mindset</center>

Dr. Carol Dweck is a pioneer of research on the concept of self-theory. It is also

known under the term implicit theory. "It is an assumption that defines the individual's

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[63] Schutte, Malouff, and Thorsteinsson, 58.

[64] Ibid., 62.

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reality and imparts meaning to events. Consistent with the idea that implicit theories are core assumptions, we do not see implicit theories rigidly determining people's behavior. Instead, we see them as creating a framework and then fostering judgments and reactions that are consistent with that framework."[65] Her research began with the study of elementary school children and her "work is part of a tradition in psychology that show's the power of people's beliefs."[66]

In general, researchers found that learners view education in two ways: as either a means to prove their capacities to others or as means to grow and develop. This distinction brought light to the differences in how students deal with failure. One perspective will assign blame to themselves and their abilities. The other perspective will associate causation with the amount of effort shown, the degree of dedication to the task, or any other cause that may be used in greater capacity on the next attempt.

The work of Dr. Dweck and other researchers clearly delineates the purpose of educators within the learning environment by endoring the concept of the incremental self-theory, also known commonly as the growth mindset, over the concept of entity self-theory, also known commonly as the fixed mindset. The educator's purpose is to inculcate a growth mindset and guard against the adoption of a fixed mindset. "Those who hold an entity theory of intelligence are more likely to blame their intelligence for negative outcomes, whereas those who hold an incremental theory of intelligence are more likely to understand the same negative outcomes in terms of their effort or

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[65] Dweck, Chiu, and Hong, 268.

[66] Dweck, *Mindset*, ix.

strategy."[67] This subtle distinction empowers the learner and, for lack of a better term, raises the bar. In short, it raises the level of performance that may be considered optimal.

Two points of additional clarity must be included here. Literature describes self-theory as related to or in reference to a certain trait, e.g. intelligence, physical capacity, social awareness. Self-theory is an assumption a person assigns to their traits. One can have growth mindset of intelligence and a fixed mindset of physical fitness. Self-theory is a set of beliefs that a person assigns to his or her traits. It is not a set of character traits that lead to the adoption of a growth mindset. However, it is logical to conclude that some traits are more highly correlated with the growth mindset, such as resiliency, introspection, curiosity, and others. Nonetheless, this study will maintain focus on the concept of self-theory as defined: as a set of assumptions a person makes as to the changeability of their traits and as to assigning causation to failures, obstacles and setbacks. This is an important distinction for the remainder of this study but also important to recognize for the larger goal of optimizing human performance in support of the Human Dimension Concept. Self-theory may be applied to all traits.

Secondly, this study will focus on intelligence and learning as directly related to optimized cognitive performance. As such, it is appropriate to use terms such as "incremental self-theory of intelligence" and a "fixed mindset of intelligence." Self-theory as applied to physical fitness and social ability will be addressed in chapter 5 as a recommendation for future research.

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[67] Dweck, Chiu, and Hong, 268.

Dr. Dweck defines the fixed mindset as "believing that your qualities are carved in stone."[68] Those with a fixed mindset "believe that a highly valued personal attribute, such as intelligence or morality, is a fixed, non-malleable trait-like entity (entity theory)."[69] As success is an almost universally held goal, this mindset "creates an urgency to prove yourself over and over."[70] Educational institutions and the structure of learning environments create ample opportunities. "Every situation calls for a confirmation of their intelligence, personality, or character. Every situation is evaluated: *Will I succeed or fail? Will I look smart or dumb? Will I be accepted or rejected? Will I feel like a winner or a loser?*"[71]

Dr. Dweck defines the growth mindset as "the belief that your basic qualities are things you can cultivate through your efforts."[72] Those with a growth mindset "believe that the attribute is a malleable quality that can be changed and developed (incremental theory)."[73] People with a growth mindset "believe that a person's true potential is unknown (and unknowable); that it's impossible to foresee what can be accomplished with years of passion, toil, and training."[74]

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[68] Dweck, *Mindset*, 6.

[69] Dweck, Chiu, and Hong, 267.

[70] Dweck, *Mindset*, 6.

[71] Ibid., 6. Italics in the original.

[72] Ibid., 7.

[73] Dweck, Chiu, and Hong, 267.

[74] Dweck, *Mindset*, 7.

These two concepts create a dichotomy that addresses deeply rooted beliefs in society: that humans have a fixed capacity for intelligence or that they may continuously increase their intelligence. As Dr. Dweck argues, that most basic and often unrecognized choice has either predisposed a person to lifelong learning or limited their capacity. As will be demonstrated later in this study, this choice will have a direct impact on organizations as superiors adopt a mindset and translate the effects of that choice onto subordinates.

This choice of mindset has profound impacts for the Army and sets the conditions for Army learners' predispositions towards the achievement of optimized cognitive performance. "In one world, effort is a bad thing. It, like failure, means you're not smart or talented. If you were, you wouldn't need effort. In the other world, effort is what *makes* you smart or talented."[75] The choice and identification of blame or causation becomes salient. Correlation, causation and future actions are assumed to be predictable. "Those who hold an entity theory of intelligence are more likely to blame their intelligence for negative outcomes, whereas those who hold an incremental theory of intelligence are more likely to understand the same negative outcomes in terms of their effort or strategy."[76] Dupeyat and Marine, in a study of adults returning to school found that "striving for competence improvement (mastery goals) had a positive impact on learning activities and outcomes, while striving to demonstrate competence (performance

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[75] Ibid., 16.

[76] Dweck, Chiu, and Hong, 268.

goals) or to avoid effort (work avoidance) had a negative influence on learning and achievement."[77]

In a quantitative, organizational survey study of employees in the Netherlands facing a change in their organization, Van Vianen et al., found that "older employees were less willing to invest in learning and training if requested by the organization than younger ones."[78] By conducting a questionnaire to determine the employees' mindset, they were able to confirm their hypothesis that "age was negatively related to training and development willingness for the high-entity employees."[79] The fixed mindset (high-entity) was found to be the source of resistance to lifelong learning in older employees, not their age. One should note that this is not a finding of capacity or ability to learn, but an observation of willingness to learn. The older employees of the company had been successful for years. To demonstrate non-mastery of a new skill would demonstrate to their peers that they were not as capable or able as their current standing in the company demonstrates. Younger employees have less to lose by pursuing new investments in learning and training. This finding demonstrates a direct challenge to the Army's goal as

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[77] Caroline Dupeyrat and Claudette Mariné, "Implicit Theories of Intelligence, Goal Orientation, Cognitive Engagement, and Achievement: A test of Dweck's model with returning to school adults," *Contemporary Educational Psychology* 30, no. 1 (2005): 43.

[78] Annelies E. M. Van Vianen, Betty A. G. W. Dalhoeven, and Irene E. De Pater, "Aging and Training and Development Willingness: Employee and supervisor mindsets," *Journal of Organizational Behavior* 32, no. 2 (2011): 240, accessed 30 March 2015, Business Source Complete, EBSCOhost.

[79] Ibid.

outlined in the Army Learning Concept for 2015. Learners with a fixed mindset will stop learning with time as they perceive an increased organizational risk to the endeavor.

The Effects of Testing on the Learner

The Army leaders must test and evaluate learners throughout all aspects of training, operations, and combat as part of the "assess" category of the operations process (understand, visualize, describe, direct, lead, and assess)[80] in order to accept prudent risk and make informed, accurate decisions. This study does recommend, nor has found, any reason to recommend against testing. However, there are some clear side effects to testing associated with self-theory which require providing context to students. These potential unintended consequences of testing effects on both the learner and the instructor are likely unrecognized by current Army programs.

Dr. Dweck found that "after receiving a poor grade on a test, [fixed mindset learners] said that they would consider cheating on the next test . . . if you don't have the ability, you have to find another way to succeed."[81] Learner assumptions of entity self-theory cause them to believe that the results of a test demonstrate both how smart they are and how smart they will be. Tests are an indication of their potential. The future is either bright and full of future success or bleak and full of second place trophies. This

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[80] Department of the Army, Army Doctrine Reference Publication (ADRP) 5-0, *The Operations Process* (Washington, DC: Department of the Army, August 2012).

[81] Carol S. Dweck, "Mind-Sets and Equitable Education," *Principal Leadership* 10, no. 5 (January 2010): 27, accessed 14 May 2015, http://search.proquest.com/docview/216292274?accountid=28992.

assumption has lasting effects in a society that consistently overpraises success on every TV channel, website, and newspaper.

The Kentucky Wildcats basketball team was undefeated in the final four matchup against the Wisconsin Badgers in the 2015 men's basketball final four. The Wildcats had an unprecedented season thus far; an incredible record of success and a group of college students at the top of their game. And yet one player didn't see it that way. "We wanted to win a national title, and we didn't do it. The season was a waste."[82] The NCAA championship was his test and he failed, therefore he is a failure. This cannot be acceptable in the U.S. Army. Soldiers are guaranteed to face failure throughout their career as second lieutenants learn their trade, as captains experience the challenges of command, as field grade officers transition to organizational leadership, and as all leaders, of all grades, experience the friction and fog of war where the enemy gets a vote as to the achievement of the Army's endstate. This doesn't imply that the Army will no longer win our nations wars with this mindset. The most important point this study will make is that adopting a growth mindset may invite some additional failure, but will directly lead to the increase in organizational performance.

<u>"Grit" as Related to the Growth Mindset</u>

Dr. Angela Duckworth began her research on the concept of "grit" as a school teacher. She found that students with the highest IQ scores did not always end up at the

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[82] Zach Schonbrun, "Wisconsin Ends Kentucky's Undefeated Streak and Will Face Duke for N.C.A.A. Title," *The New York Times*, 4 April 2015, accessed 7 April 2015, http://www.nytimes.com/2015/04/05/sports/ncaabasketball/wisconsin-beats-kentucky-will-face-duke-in-ncaa-title-game.html?_r=0, 1.

top of their class at the end of the school year. In pursuit of a reason, Dr. Duckworth and

Eskreis-Winkler, et al., sought to determine if "grit, the tendency to sustain passion and

perseverance for long-term goals, is a domain-general trait that promotes 'showing up'

across diverse life contexts."[83] In a four-part study of Army SF selection candidates, sales

employees, high school students, and married couples, the study found that individuals

possessing "grit" were less likely to quit SF selection, more likely to maintain long-term

sales jobs, and more likely to graduate highschool. However, the same study found that

men with "grit" were more likely to remain married, but found no association with the

same trait in women.[84]

In two studies of 140 eighth grade students at a magnet school in the northeast,

Duckworth and Seligman attempted to explain the "wide range of performance among

children of equal IQ."[85] They found that effort was a greater indicator is success than

intelligence. "Highly self-disciplined adolescents outperformed their more impulsive

peers on every academic-performance variable, including report-card grades,

standardized achievement-test scores, admission to a competitive high school, and

attendance. Self-discipline measured in the fall predicted more variance in each of these

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[83] Lauren Eskreis-Winkler, Elizabeth P. Shulman, Scott A. Beal, and Angela L. Duckworth, "The Grit Effect: Predicting retention in the military, the workplace, school and marriage," *Frontiers In Psychology* (2014): 1, accessed 7 April 2015, Academic Search Complete, EBSCOhost.

[84] Ibid.

[85] Angela L. Duckworth and Martin E. P. Seligman, "Self-Discipline Outdoes IQ in Predicting Academic Performance of Adolescents," *Psychological Science (Wiley-Blackwell)* 16, no. 12 (2005): 939, accessed 7 April 2015, Academic Search Elite, EBSCOhost.

outcomes than did IQ, and unlike IQ, self-discipline predicted gains in academic performance over the school year."[86]

While "grit" and mindset are defined differently by these researchers, the trends and themes are the same and complimentary. Focusing the learner on effort, determination, learning strategies, and goals in an effort to frame success in terms of traits and factors that are malleable leads to success. Focusing the learner on non-malleable traits and circumstances causes the learner to make pre-determined conclusions as to their ability. When that conclusion is not met, they reframe their view of themselves in a more negative light, lower their expectations, and make additional presuppositions as to future results. Focusing on fixed attributes cannot be viewed as optimized cognitive performance.

The Importance of Mindset for Leaders, Educators, and Trainers

The learning assumptions of teachers have a direct impact on the student. While this may seem self-evident, it is also worth exploring in terms of the fixed and growth mindset. Dr. Dweck argues that "for the educator with a fixed mind-set, learning is the students' responsibility. If students don't have what it takes, so be it."[87] If students can only perform at a certain level, then why should educators expect more than what is indicated from entrance exams or intelligence tests? Innovation and creativity does not occur in a climate of regular judgment and the potential to reach a level of cognitive optimization becomes impossible.

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[86] Ibid., 941.

[87] Dweck, "Mind-Sets and Equitable Education," 28.

"But for the educator in a growth mind-set, learning is a collaboration in which the teacher has great responsibility."[88] This responsibility that Dr. Dweck mentions is one that involves both the requirement to teach as well as the requirement to shape the learner's perspective. It does not mean that the student is not responsible for learning. In short, it is the responsibility of the teacher to explain the purpose of testing and shape the interpretation of those results as an indicator of effort and drive less than a determination of innate abilities. Most importantly, it is the responsibility of the instructor to fight against self-fulfilling prophesies. The study by Van Vienan, et al., found a direct correlation between the expectations of a supervisor and the performance of a subordinate. "The relationship between age and training and development willingness was also moderated by supervisor beliefs about the learning avoidance orientation of older workers."[89]

In 1968, Rosenthal and Jacobson coined the term the Pygmalion effect as they discovered that the expectations of an educator are correlated to student performance.[90] In a meta-analysis of the concept, Kieren and Gold define the Pygmalion effect as "a person or group of people acting in accordance with the expectations of another. That person or group may, on some level, internalize the higher expectations placed on them and then act in ways to fulfill those expectations."[91] In comparing studies of the Pygmalion effect

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[88] Ibid.

[89] Van Vianen, Dalhoeven, and Pater, 240.

[90] Robert Rosenthal and Lenore Jacobson, "Pygmalion in the Classroom," *The Urban Review* 3, no. 1 (1968): 16-20.

[91] Nicole M. Kierein and Michael A. Gold, "Pygmalion in Work Organizations: A Meta-Analysis," *Journal of Organizational Behavior* 21, no. 8 (December 2000): 913,

in business and military studies, Kieran and Gold found that "the effect was significantly stronger in military setting than in business settings"[92] for five reasons: direct control over subordinates, close supervision, the challenge of questioning authority, the relatively young age of military personnel as compared to business employees, and finally, the fact that all studies of the Pygmalion effect are associated with a common researcher.[93] While the final fact may cause scrutiny on the other four, the conclusions make intuitive sense from the perspective of a military officer. In either case, it is significant to note that the Pygmalion Effect is a proven concept and the risk to transferring expectation of superiors into the performance of subordinates is a real threat to optimizing cognitive performance.

As referenced in the book, Mindset, Dr. Dweck argues for the importance of mindset in superiors and correlates that mindset with the climate of the organization and the potential to achieve optimal performance.

> When bosses become controlling and abusive, they put everyone into a fixed mindset. This means that instead of learning, growing, and moving the company forward, everyone starts worrying about being judged. It starts with the bosses' worry about being judged, but it winds up being everybody's fear about being judged. It's hard for courage and innovation to survive a companywide fixed mindset.[94]

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accessed 14 May 2015, http://search.proquest.com/docview/224880292?accountid= 28992.

[92] Ibid., 924.

[93] Ibid., 924-925.

[94] Dweck, *Mindset*, 124.

Summary and Conclusions

This study has reviewed the governing literature supporting the concept of self-theory and found relationships within the Army Learning Concept for 2015. This theory is found to support the Human Dimension Concept's goal of optimizing cognitive performance. The factors supporting high emotional intelligence are found to be directly correlated with the defining characteristics of the growth mindset. Emotional intelligence is found to be a significant contributor to academic achievement and incremental self-theory (growth mindset) has been found to correlate directly with emotional intelligence. When observing that high IQ learners were not necessarily the highest academic achievers at the end of an academic term, Dr. Dweck found that the adoption of a growth mindset was the distinguishing factor that explained the difference. Finally, these findings validate the assumption made in the introduction of this study. The adoption of a growth mindset of intelligence is, in fact, a requirement to optimize cognitive performance.

CHAPTER 3

RESEARCH METHODOLOGY

Purpose

The purpose of this chapter is to explain the research methodology used to determine if the U.S. Army has incorporated self-theory into the curriculum, program of instruction and graduation requirements of its three primary commissioning sources. This chapter will define and provide an overview of the research methodology, introduce the data sources used, and explain the analysis method chosen to answer this study's research questions.

Overview

Chapter 1 of this study introduced the concepts and themes of the Human Dimension Concept. In defining the problem, the concept identified the challenge of matching Soldier capabilities with the changing operational environment in order to optimize human performance. Three components of the solution were chosen: the cognitive, physical, and social. This study identified the need to focus on the cognitive component of the solution and sought a theory that would set the conditions for optimized cognitive performance.

Self-theory met that need and identified two assumptions that learners make as to their potential to learn: entity self-theory (the fixed mindset) and incremental self-theory (the growth mindset). This study then adopted the assumption that entity self-theory will prevent learners from reaching a level of cognitive performance that may be considered optimized. Naturally, this study also assumes that the adoption of an incremental self-

theory of intelligence is required to achieve optimized cognitive performance. A review of literature in chapter 2 sought to validate that assumption.

Chapter 2 of this study introduced the cognitive component of the solution as defined by Army concepts, regulations and doctrine while further exploring the relevant literature on and associated with the concept of self-theory of intelligence. Army publications clearly identify the goal of lifelong learning and seek to adopt modern educational techniques and innovative theories while maximizing the use of technology to enable Soldiers in this endeavor.

The concepts of IQ and EQ were explored to determine their relationship to organizational performance and to explore their connection to self-theory. The impact of testing and the role of effort, determination, and drive were found to be related to mindset. The potential for teachers, educators and superior officers to translate their expectations of a learner into the actual performance of that learner were identified and coined under the term the Pygmalian Effect. In summary, chapter 2 validated the assumption that a growth mindset is required to optimize cognitive performance and further outlined the greater influences and impacts of self-theory as it relates to the Human Dimension Concept.

<center>Research Methodology</center>

This study will adopt a qualitative research design methodology using case studies to answer research questions: Are Army initial-entry commissioning programs incorporating self-theories of intelligence into their curriculum and course outcomes in order to optimize cognitive performance? How can Army assessments encourage the development of a growth mindset?

According to Dr. John Creswell, "qualitative research is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem."[95] This definition fits cleanly with a study of self-theory. It is not a process of choosing a hypothesis and assimilating data to prove or disprove a theory. It is an inductive process of exploration using words over data to explore meaning, to understand concepts, and to relate ideas. The researcher is the primary instrument. "Qualitative researchers collect data themselves through examining documents, observing behavior, or interviewing participants."[96]

It is an inductive process whereby the researcher works to pursue data while exploring themes to achieve a stuffiest level of saturation while making meaning of the relevant concepts. This inductive process involves shifting focus from pursuing relevant research and concepts to matching those concepts with the goal of the research. According to Creswell, saturation is achieved "when gathering fresh data no longer sparks new insights or reveals new properties."[97] It is further described as an emergent design. "The initial plan for research cannot be tightly prescribed, and some or all phases of the process may change or shift after the researcher enters the field and begins to collect data."[98]

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[95] Creswell, 4.

[96] Ibid., 185.

[97] Ibid., 189.

[98] Ibid., 186.

This is the appropriate choice of research design as the goal of the research is not to prove or to test, but to understand and explore. This research is not using surveys or data to test a hypothesis, but using existing theories to understand their use within Army programs. This is worthwhile process, especially in light of the Army's Concept framework. An Army concept, in this case the U.S. Army Human Dimension Concept, is not Army doctrine, but an emerging doctrine. Upon publication, an Army concept has been highly vetted and widely staffed throughout the Army Staff, the Training and Doctrine Command, and the Army capabilities development community, but has not been fully endorsed for adoption as Army guidance and accepted practice as is the case with Army doctrine. In this manner, seeking to understand how relevant theories, such as self-theory, are currently in use within existing Army doctrine, regulations, and policy is a worthwhile endeavor. This understanding may lead to a more effective transition of a concept into doctrine and practice.

As this study seeks to understand the intricacies of self-theory of intelligence as it relates to optimized cognitive performance, it follows that the study of the Army's three primary commissioning sources is the most appropriate means to explore the implementation of Army policy on the matter. Such a process leads to the adoption of a case study qualitative design methodology as the most appropriate specific design for this research.

<div align="center">Data Sources and Collection Procedures</div>

This case study methodology will focus primarily on four areas: Army and TRADOC regulations governing the intent and outcomes of Basic Officer Leaders Course- Alpha (BOLC-A) programs and the curriculum, outcomes, and graduation

requirements of each of the Army's three primary commissioning sources. Creswell argues that case studies typically adopt four or five cases in order to achieve the appropriate level of saturation.[99] The study of qualitative documents will be the primary focus of this study.

This choice is advantageous as it enables research to focus on theories the Army has accepted as beneficial to all future officers, to do so in the language of the Army, and to maintain an echelon of focus that is equivalent to that of the Human Dimension Concept. In other words, it does not make sense to compare the potential outcomes of the Human Dimension Concept to the outcomes of a specific ROTC Battalion at a specific university, but does follow that the comparison of an Army concept, endorsed at the 4-Star level, may be compared to Army regulations, policies, and published training and education outcomes at the institutional level.

However, this choice also has some disadvantages. The Human Dimension Concept was published in May of 2014. Army policies, regulations, and outcomes in practice today at our three commissioning sources certainly predate the Human Dimension Concept. Nonetheless, this is not a significant hindrance to this specific study. The study of self-theory began in the late 1990s and became widely publicized in 2006. As our three primary commissioning sources are greatly influenced by educational institutions and educational practice, the potential for the inclusion of self-theory existed prior to the publication of the Human Dimension Concept.

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[99] Ibid., 189.

A second disadvantage is the fact that this study will be limited to the practices that are included in public documents, i.e. Army policies, regulations, and outcomes. The potential exists for individual commanders, leaders, administrators, teachers, and others to include self-theory within their individual curriculums, teaching styles, and/or syllabi simply by staying current with emerging educational techniques and literature. Again, while this potential exists and worthy of note, this study seeks to maintain focus at an echelon above the level of the specific classroom, teacher, or instructor.

<u>Data Analysis</u>

As is typical in a qualitative study, research data will be collected and analyzed simultaneously. "Data analysis in qualitative research will proceed hand-in-hand with other parts of developing the qualitative study, namely, the data collection and write-up of findings."[100] This study has adopted and found proof to support an assumption, specifically, the assumption that self-theory is worthy of inclusion in Army educational policy. The analysis segment of this study will pursue a deficiencies model approach to determine the degree to which self-study theory, themes, and concepts currently exist. According to Creswell, "deficiencies in past literature may exist because topics have not been explored with a particular group, sample, or population."[101] This condition exists with respect to self-theory. Literature and researchers addressing the topic are primarily focused on childhood education through the highschool level. Research has included a study at West Point, a study of aging, skilled workers, and a study of accounting students,

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[100] Ibid., 195.

[101] Ibid., 117.

and other studies, but nonetheless, the clear focus of the larger effort is on school-aged students.

Self-theory has not been adequately studied by the Army or by researchers associated with the Army. Analysis of the data available through published Army documents will demonstrate this fact while this study attempts to contribute to the effort.

Summary

As outlined, this study has adopted a qualitative case study methodology to understand the relationship of self-theory to the Human Dimension Concept and explore the inclusion of self-theory within the regulations, curriculum, and governing outcomes of the U.S. Military Academy, the Reserve Officer Training Corps, and the Officer Candidate School. Doing so will both contribute to the Army literature on the topic and identify current programs and educational techniques that complement the potential future adoption of self-theory of intelligence within Army concepts.

CHAPTER 4

ANALYSIS

Leadership is one of the most observed and least understood phenomena on
earth.[102]

— James MacGregor Burns, *Leadership*

<u>Purpose</u>

The purpose of this study is to understand the concepts of entity and incremental

self-theory of intelligence as it applies to the U.S. Army and to understand the

relationship of those theories to the desired outcome of optimized cognitive performance

as stated the U.S. Army Human Dimension Concept. This chapter will use a deficiencies

model to explore the curriculums and desired outcomes of the United States Military

Academy, the Reserve Officer Training Corps, and U.S. Army Officer Candidate School

to determine if the graduation and commissioning requirements of each of these

institutions contributes to either the growth or the fixed mindset.

<u>Identifying Mindsets: Defining the Search</u>

Dweck et al., explain the measurement of self-theory and apply that method of

survey to the measurement of intelligence, morality, and a person as a whole while

demonstrating how self-theory may be applied to other domains.

> The three items in the implicit theory of intelligence measure are (a) "You have a
> certain amount of intelligence and you really can't do much to change it";
> (b) "Your intelligence is something about you that you can't change very much";
> and (c) "You can learn new things, but you can't really change your basic

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[102] James M. Burns, *Leadership* (New York: HarperCollins, 1978), 2.

intelligence." Respondents indicated their agreement with these statements on a 6-point scale from 1 (strongly agree) to 6 (strongly disagree).

To score this questionnaire, scores on the three items are averaged to form an overall implicity theory score (ranging from 1 to 6), with a higher score indicating stronger incremental theory. Most typically, to ensure that only participants with clear theories are included, participants are classified as entity theorists if their overall implicit theory score is 3.0 or below and classified as incremental theorists if their overall score is 4.0 or above.[103]

This study is pursuing the inclusion of a test, questionnaire, survey or any other method that is being utilized within the BOLC-A organizations in order to determine cadets and candidates fixed or growth mindsets. Finding a program or effort in this manner will answer the research question: Are Army initial-entry commissioning programs incorporating self-theories of intelligence into their curriculum and course outcomes in order to optimize cognitive performance?

Basic Officer Leaders Course Alpha
(Pre-Commissioning Training)

The U.S. Army structures its commissioning program under three primary sources: the United States Military Academy at West Point, the United States Army Cadet Command, and the United States Army Officer Candidate School. The directives and training guidance used by each of these three organizations is generated by the United States Army Training and Doctrine Command (TRADOC) Deputy Commanding General for Initial Military Training (DCG-IMT) through the publication of TRADOC Regulation 350-36 *Basic Officer Leader Training Policies and Administration*. While not directly subordinate to TRADOC, this policy applies to Cadet Command and the U.S.

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[103] Dweck, Chiu, and Hong, 269.

Military Academy by the execution of a memorandum of agreement. The regulation places responsibility for the integration of the BOLC Common Core Task List (CCTL) on the DCG-IMT while delegating proponency for the program of instruction (POI) of each commissioning source. The proponent of the USMA POI is the Commandant, USMA; for ROTC, the proponent is the CG, US Army Cadet Command; and for OCS, the proponent is the CG, Maneuver Center of Excellence.

One of the stated goals of BOLC is the transformation of a civilian into an Army officer that embodies the Army Profession. TRADOC Regulation 350-36 defines this transformation as "the deliberate moral, ethical, physical and psychological development and progression of a civilian into a Soldier and a member of the Army Profession, who lives the Army Values and demonstrates an appropriate level of commitment, discipline, task proficiency, adherence to the Army ethic and motivated to become a Professional Soldier."[104] In short, BOLC is a molding process. The Army seeks to take civilians from disparate backgrounds, walks of life, areas of civilian study, and varying perspectives and mold them into a commissioned officer with a defined list of skills and traits as defined by the BOLC Common Core Task List and nine BOLC outcomes:

1. Understand, accept, and live by the Army Values and Warrior Ethos.

2. A Soldier is a proud team member possessing a character consistent with the Army's professional military ethic.

3. Possess self-discipline, and be adaptable and flexible.

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[104] Department of the Army, Training and Doctrine Command (TRADOC) Regulation 350-36, *Basic Officer Leader Training Policies and Administration* (Fort Eustis, VA: Department of the Army, 13 January 2014), 12.

4. Be capable of identifying and solving problems appropriate to their position and responsibility.

5. Willingly subordinate self to the mission and fellow Soldiers.

6. Be able to operate effectively under stress.

7. Be physically fit.

8. Be proficient in WTBDs and military occupational specialty related technical skills.

9. Demonstrate competency in Army traditions, customs and courtesies, and fundamental Soldier skills and responsibilities.[105]

Of key note associated with these outcomes as they relate to the creation of a growth mindset is the reference to the purpose and the example set by the BOLC mentor cadre. "I am the proud example of our Army; follow me and I will do everything I can to assist you to meet our standards and achieve your goals."[106] As supported by the study of the growth mindset, the responsibility for learning is on the teacher to shape the learning environment of the learner; to frame the challenge of learning and to couch expectations in terms of effort, not ability. This model of follow me to achieve our standards while achieving your goals sets the necessary conditions to enable a growth mindset learning environment.

Within the nine BOLC outcomes, self-discipline, adaptability, flexibility, problem solving, and operating effectively under stress are outcomes that may appropriately nest

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[105] Ibid., 15.

[106] Ibid.

within the context of a growth mindset learner. However, the themes of resiliency, learning from failure, and lifelong learning and others associated with the growth mindset are absent from these outcomes. While these growth mindset themes are very likely captured within the training guidance and leader development programs of good commanders and leaders within BOLC programs, TRADOC Regulation 350-36 does not capture them explicitly.

The approved BOLC-A CCTL for FY 15 includes the task Officer Continuum Learning Area in IMT. Subordinate to that task is the subtask to "Demonstrates self-development and understands the life-long learning process for themselves and for their subordinates."[107] Under the task for Lifelong Learning, the CCTL directs eight subtasks: recognize Army requirements for lifelong learning; conduct self-assessment and develop a short-term plan for personal goals; access and evaluate the quality and usefulness of information to meet current needs using a variety of digital resources; apply existing learning skills and investigate new learning skills; demonstrate valuing lifelong learning by seeking advice; occasionally conduct self-assessment, develop and review a near-term plan; learn and apply new learning skills; and communicate self-assessment requirements to superiors and subordinates.[108] Again, these tasks and subtasks do not directly address the predispositions of learners toward a growth mindset, in this case, within the goal of creating lifelong learners. However, these tasks will greatly contribute to and effectively

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[107] Department of the Army, Training and Doctrine Command (TRADOC), *BOLC Common Core Critical Task List*, 20 March 2015, accessed 22 April 2015, https://www. us.army.mil/suite/folder/43990783, 1.

[108] Ibid., 15.

nest with the potential adoption of the concept incremental self-theory of intelligence within the CCTL.

The stated purpose of having common outcomes associated with all BOLC-A organization is to "ensure follow-on training organizations and initial units will receive officers with a common basis of training and professional development."[109] This purpose is necessary as a prerequisite to accepting prudent risk. Army senior leaders must certify that new Lieutenants have the basic requisite skills and have demonstrated a level of potential to lead Soldiers into combat. However still, these common outcomes are nonetheless neutral with respect to the fixed and growth mindset. As such, they have likely have a minimal effect on the prior predispositions of learners and therefore does not directly contribute to the goal of optimizing cognitive performance. This study will further pursue the deliberate inclusion of self-theory in initial entry officer training at the U.S. Military Academy.

United States Military Academy

The mission of the US Military Academy is "to educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of Duty, Honor, Country; and prepared for a career of professional excellence and service to the Nation as an officer in the United States Army."[110] Further, the stated outcome of the academy is to produce "commissioned leaders of character who, in preparation for the intellectual and ethical responsibilities of officership, are broadly

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[109] Department of the Army, TRADOC Regulation 350-36, 25.

[110] Department of the Army, United States Military Academy, *Academic Program, Class of 2016: Curriculum and Course Descriptions*, accessed 22 April 2015, http://www.usma.edu/curriculum/sitepages/Course%20Catalog.aspx, 12.

educated, professionally skilled, moral-ethically and physically fit, and are committed to continued growth and development both as Army officers and as American citizens."[111]

A review of the academic program goals will reveal many of the common themes outlined in TRADOC guidance to all commissioning sources. A commitment to lifelong learning, the pursuit of knowledge, the responsibility for personal intellectual development, and understanding how to influence human behavior are the closest related goals to the study of mindset. The study of curricular objectives reveals the guidance to design a curriculum to "help cadets to gain an understanding of why humans act as they do, which provide insight into the reasons humans offer for their actions, and which develop an awareness of how humans are influenced to accomplish a common purpose."[112] This guidance appropriately sets conditions for the inclusion of the priming of cadets towards the growth mindset, however, no explicit mention of efforts to optimize cognitive or intellectual performance are mentioned within the institutions overarching guidance.

As part of the Special Academics Program, the Center for Enhanced Performance officers three courses to help students increase their learning potential: the Peak Performance Program, the Student Success Course, and Reading Efficiency. The Peak Performance Program is a voluntary program to help cadets "gain the ability to perform at one's full potential in any performance situation, especially under pressure and

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[111] Ibid., 12.

[112] Ibid., 13.

stress."[113] The program teaches "relaxation, effective thinking, goal setting, focus and concentration, visualization and imagery, and team building"[114] and may be tailored to the individual needs of the cadet, but does not produce course credit. The Student Success Course produces course credit and is designed to "improve cadet academic, physical, and leadership performance"[115] by teaching strategies such as "effective thinking, goal setting, time management, textbook study system, concentration, test taking, visualization, memory, note taking and others."[116] Of all courses offered by the Academy, these two show the greatest potential to address the predispositions of learners toward a fixed mindset while mentoring and coaching students to develop a growth mindset, but these endeavors are not explicitly stated in the course description.

Again, this study acknowledges that the course curriculum, the faculty, and the mentors associated with the West Point experience may be developing a growth mindset within the Corps of Cadets, but this research will remain focused on the institutionalized outcomes of the organization as documented in published policy and regulations. This study will now further pursue the deliberate inclusion of self-theory in initial entry officer training within the U.S. Army Cadet Command.

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[113] Ibid., 24.

[114] Ibid.

[115] Ibid.

[116] Ibid.

U.S. Army Cadet Command

"The U.S. Army Cadet Command selects, educates, trains, and commissions college students to be officers and leaders of character in the Total Army; instills the values of citizenship, national and community service, personal responsibility, and a sense of accomplishment in high school students."[117] It is comprised of eight brigades across the greater United States, including as many as 275 campuses, each associated with a different university and impacted by even more instructors, leaders, and mentors associated with the ROTC cadet experience. As such, Cadet Command may face the greatest challenge of inculcating a growth mindset within the ranks of its cadet corps as training guidance, command policy, and instructional techniques will vary across the organization.

The governing regulations for the U.S. Army Cadet Command that outline the desired outcomes and evaluations of officers commissioned through the ROTC program are Army Regulation 145-1 *Senior Reserve Officers' Training Corps Program: Organization, Administration, and Training*, and Cadet Command Regulation 145-3 *Army Senior Reserve Officers' Training Corps (ROTC) Basic Officer Leader Course-A (BOLC-A) – On-campus Training and Leadership Development*.

AR 145-1 delegates responsibility for the conduct of the ROTC program to the CG, Cadet Command and empowers the Professor of Military Science to verify cadet eligibility while structuring his or her ROTC program within the more broad context of university policy, classroom instruction, field training, broadening programs, and multi-

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[117] Department of the Army, "U.S. Army Cadet Command," accessed 28 April 2015, http://www.cadetcommand.army.mil/.

university programs such as Basic Camp and Advanced Camp.[118] Prerequisites and

training requirements are covered in this regulation, but outcomes are withheld for

inclusion in Cadet Command Regulation (CCR) 145-3.

As outlined in CCR 145-3, Cadet Command relies on the Army Values and the

concepts associated with the Army Profession as referenced in ADP-1; the Army Leader

Requirements Model as referenced in ADRP 6-22; and the outcomes as written in the

Cadet Command Leadership Development Program Handbook as the basis for the

evaluation and future commissioning of ROTC Cadets. "The performance indicators for

each of the leader attributes and core competencies, along with the Army Values, provide

both assessors and Cadets clear definition and sample performance measures of the

leadership behavior expected."[119] Army leader attributes and core competencies will be

discussed later in this chapter.

CCR 145-3 directs that the Professor of Military Science instill in cadets an

attitude attitude of personal responsibility for learning and set the conditions for lifelong

learning by starting the cadet's personal, professional library through the purchase of the

Military Science and Leadership textbooks. The regulation does not explicitly reference

self-theory as a tool or construct within the process of training and educating cadets to

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[118] Subordinate regulations such as CCR 145-3 refer to Basic Camp as the Leader Training Course (LTC) and refer to Advaced Camp as the Leader Development and Assessment Course (LDAC). This study will use the terminology of AR 145-1 as the regulation is still current.

[119] Department of the Army, U.S. Army Cadet Command, Cadet Command Regulation 145-3 Army Senior Reserve Officers' Training Corps (ROTC) Basic Officer Leader Course-A (BOLC-A)- On-campus Training and Leadership Development, accessed 28 April 2015, http://rotc.illinoisstate.edu/downloads/CC%20Reg%20145-3%20ROTC%20Leadership%20Development.pdf, 7.

become commissioned officers. However, within the organizational context of eight brigades and hundreds of battalions, self-theory may be found at certain universities as this theory is more prevalent within academia. Nonetheless, a review of the training guidance and syllabi of every ROTC university is outside of the scope of this study. It is clear that self-theory is not deliberately included within Cadet Command guidance and policy governing the commissioning of lieutenants and so this study will further pursue self-theory within the Officer Candidate School program of instruction.

United States Army Officer Candidate School

The mission of the Officer Candidate School is to provide "trained, agile, and adaptive junior Officers for an Army at war who are ready today and relevant for tomorrow's challenges while taking care of our Soldiers, Civilians, and Army Families."[120] The school is administered by the Maneuver Center of Excellence and governed by the policies outlined in two primary documents: Army Regulation 350-51 *United States Army Officer Candidate School*, dated 11 June 2001, and the Officer Candidate School Standard Operating Procedures.

AR 350-51 is primarily an administrative document the established the criteria for application, admission and commissioning into the U.S. Army Reserve and Active Army components. The document contains many outdated references to organizations that have changed in the last 14 years, but it is still current as it is the source of authority used by

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[120] Department of the Army, Maneuver Center of Excellence, "Officer Candidate School Standard Operating Procedures," accessed 28 April 2015, http://www.benning. army.mil/infantry/199th/ocs/content/pdf/ocsop.pdf, 6.

the OCS commandant as referenced in the current OCS SOP.[121] It is useful to this study

as it outlines the predeparture interview process and questions. The predeparture

interview is a mandatory interview of the OCS applicant with the applicant's unit

commander. The interview certifies the candidate's fitness for attendance at the school

and verifies the candidate's motivation to earn a commission. Herein lies a great

opportunity to screen candidates for a fixed or a growth mindset. However, the primary

focus is on mitigating risk, i.e. preventing an unfit or unmotivated candidate from wasting

Army time and funding prior to departure from the unit of assignment.

The Officer Candidate School Standard Operating Procedure, dated 18 April

2014, is the primary document governing the outcomes and purpose of the training as

well as the day-to-day activities of the school. It outlines the "the policies, procedures,

actions, responsibilities and privileges of the OCS program."[122] The primary theme

throughout the document and the almost ubiquitous concept associated with the school is

standards. "Standards are the engine of discipline and essential to success on the

battlefield. The primary goal of the OCS SOP is to guide and reinforce the high standards

of conduct and appearance of all Soldiers in order to build Soldierly habits and confident

leaders."[123] The motto of the school is "Standards, No Compromise". As a candidate, you

either internalize and meet those standards or you return to the Army without a

commission.

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[121] Ibid.

[122] Ibid., 3.

[123] Ibid.

"OCS is a 12 week leadership course, during which the cadre constantly develop and evaluate the performance and potential of the Candidates for commissioning as Second Lieutenants. OCS focuses this development and evaluation of each Candidate on the Leadership Dimensions outlined in [ADRP 6-22]."[124] These leadership dimensions will be further explored later in this chapter.

A review of the OCS SOP chapters covering the topics of education, training, leader development, and evaluation reveals an interesting departure from the content of similar USMA and ROTC documents. The OCS SOP speaks more of performance as an indicator of potential to be a commissioned officer and less of outcomes. The document defaults to the leadership requirements model as outlined above and in ADRP 6-22. "The leadership evaluation program at OCS is based on the premise that leaders are developed by leading, using proven techniques that have been historically effective. It initially requires the Candidate to follow a prescribed format and moves gradually toward allowing individual initiative in problem solving and critical thinking."[125] It is geared primarily toward the achievement of certain evaluative gates throughout the progression of the course; a candidate either meets those gates or risks being recycled or removed from the course. The document makes no mention of lifelong learning nor does it advance the discussion of lifelong learning towards an assessment of the predispositions of candidates to pursue lifelong learning.

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[124] Ibid., 6.

[125] Ibid., 13.

In an emersive course with only 12 weeks to determine a candidate's fitness for service as a commissioned officer, these judgments, evaluations and determinations made by the OCS cadre are paramount to all other elements of the training. Of all of the commissioning sources, OCS has the greatest potential for both the positive and negative impacts of the Pygmalian Effect because the instructor to student ratio is large and the environment is highly controlled. When viewed through the lens of the fixed or growth mindset and in light of rigorous and routine judgments of officer potential, the findings of the cadre as communicated to the candidate will have lasting impacts on their potential for optimized cognitive performance.

The Army Leadership Requirements Model

The Army Leadership Requirements Model outlines the attributes and competencies that are expected of a U.S. Army leader. These attributes and competencies are both a model for leaders to follow as well as a guide to structuring programs of instruction throughout leadership training courses throughout every professional military education curriculum in the Army. "The Leadership Requirements Model conveys the expectations that the Army wants leaders to meet."[126] As leader development remains the number one priority of the Chief of Staff of the Army, one can imagine how important the leader requirements model is to shaping the Army. To change its logic or a fill a gap in its structure will have profound and reverberating impacts throughout our Army culture.

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[126] Department of the Army, Army Doctrine Publication (ADP) 6-22, *Army Leadership* (Washington, DC: Department of the Army, August 2012), 5.
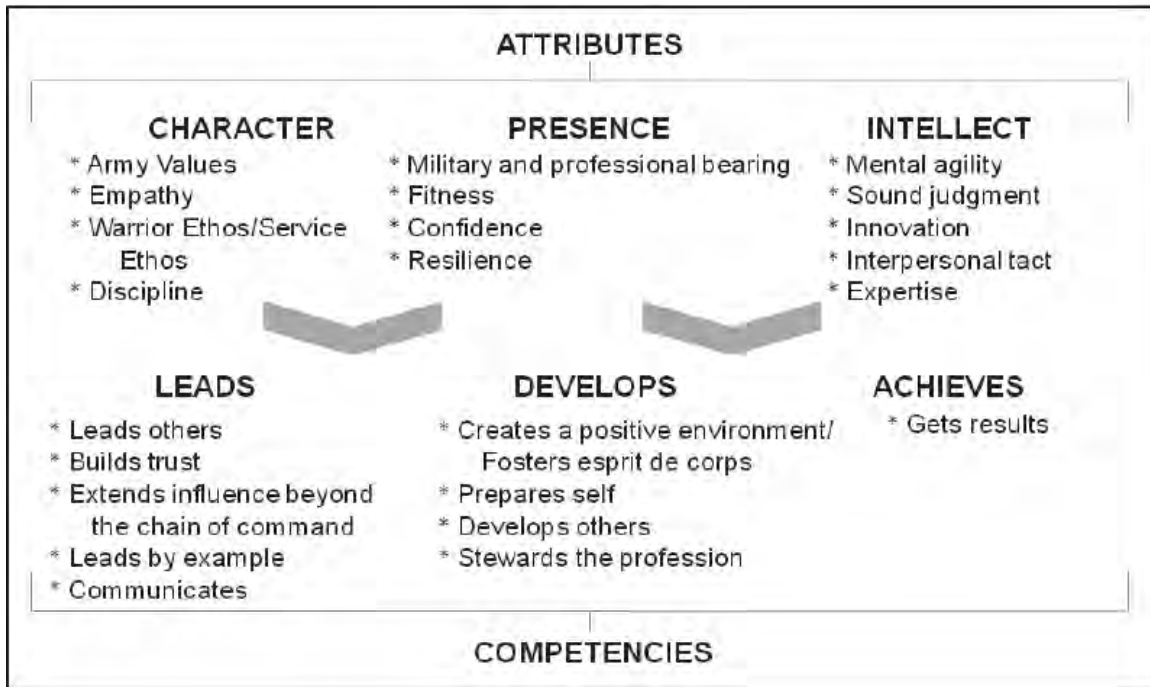
Figure 4.   Leadership Requirements Model

Source: Department of the Army, Army Doctrine Reference Publication (ADRP) 6-22, *Army Leadership* (Washington, DC: Department of the Army, September 2012), 1-6.

A review of the Leadership Requirements Model through the lens of self-theory and in search of the concept of the growth mindset of intelligence reveals some related concepts, but none that directly address the concept. "Leadership is affected by a person's character and identity… Identity is one's self-concept, how one defines him or herself… Leaders who are unsure of themselves may not have a strong idea of their identity."[127]

ADP 6-22 and ADRP 6-22 develop the definition of an Army leader by categorizing what a leader should be and know under the banner of attributes and what a leader is required to do under the banner of competencies. The logic and flow of the

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[127] Ibid., 6.

model, the written organization of the documents, and the theme throughout both publications is the achievement of results. Army leaders get results. But what if they don't? What options exist if an Army leader fails? In general, Army doctrine addresses failure as setbacks, friction, uncertainty, and obstacles. A more focused review of the attributes and competencies of Presence, Intellect, Leads, Achieves and Develops is warranted.

Presence is defined as "the leader's outward appearance, demeanor, actions and words."[128] Of note here is the use of the adjective "outward". While inner character and intellect are captured as influencers of presence, the predominant concern of Presence is the impact a leader has on others.

> The impression a leader makes on others contributes to success in getting people to follow. This impression is the sum of a leader's outward appearance, demeanor, actions and words and the inward character and intellect of the leader. Presence entails the projection of military and professional bearing, holistic fitness, confidence and resilience. Strong presence is important as a touchstone for subordinates, especially under duress. A leader who does not share the same risks could easily make a decision that could prove unworkable given the psychological state of Soldiers and Civilians affected by stress.[129]

Resiliency, a sub-attribute of Presence, is described as how leaders "recover quickly from setbacks, shock, injuries, adversity, and stress while maintaining their mission and organizational focus and they foster this capacity in followers. Resilient leaders learn and grow from those situations, incorporating changes into positive

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[128] Ibid.

[129] Ibid.

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outcomes for mission accomplishment."[130] This definition fits well with the themes and character traits associated with the growth mindset. The recovery from setbacks, view of adversity as a normal influence on a process, the impact of stress as a part of daily operations, the need to learn in all circumstances, and the incorporation of lessons learned are all directly correlated to a growth mindset, but are not mutually exclusive. Each of these could also be adopted by a fixed mindset learner. They are not unique to either self-theory assumption. What is lacking is a discussion of causation and the assignment of blame for these theoretical setbacks and sources of adversity. Does the resilient Soldier assign cause to his or her value and self-worth or does the Soldier couch those same sources of friction as a normal occurrence that may be better overcome through continuous learning, the application of better techniques, and more focused effort?

A review of doctrine reveals correlation under the attribute of Intellect. Interpersonal tact, a sub-attribute of Intellect, is described in terms of recognizing diversity, self-control, emotional factors, balance, and stability. "Effectively interacting with others depends on knowing what others perceive. It relies on accepting the character, reactions, and motives on oneself and others."[131] Here we find the reference to understanding personal motivation and connecting that motivation to the effective performance of the leader by means of personal interaction. Enabling the leader to understand his or her motivations in terms of the fixed and the growth mindset would greatly compliment this attribute. Further, EQ is more highly correlated with

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[130] Department of the Army, *Army Doctrine Reference Publication (ADRP) 6-22, Army Leadership* (Washington, DC: Department of the Army, September 2012), 4-2.

[131] Ibid., 5-2.

organizational success than IQ which increases the value of interpersonal tact when seeking to optimize cognitive performance.

Under the competency of Leads, the sub-competency of Builds Trust is correlated with the impact of self-theory. While a growth mindset may or may not impact trust, adopting a fixed mindset has been found to correlate directly with the loss of trust, lack of innovation, and the fracturing of teams. A superior who adopts the fixed mindset will spread judgment in the organization causing subordinates to become risk averse, mechanistic, and unwilling to accept prudent risk instead of focusing on outcomes, demonstrating innovation, and exploring novel techniques. How much trust may be fostered in an organization where mistakes and failures will cause your boss to put a neatly-defined box around your capabilities?

The competency of Achieves has only one sub-competency, Gets Results, but nonetheless contains great potential for the inclusion of self-theory. ADRP 6-22 directly correlates the concept of getting results with achievement and mission accomplishment. However, the mention of getting results is not the predominant theme of the chapter as may be expected by a survey of the Leadership Requirements Model graphic.

The discussion quickly turns to many concepts that compliment incremental self-theory. "Mission accomplishment co-exists with an extended perspective towards maintaining and building the organization's capabilities."[132] This effort is enabled by distinguishing between short-term and long-term objectives. Further, the differentiation between direct, organizational, and strategic leaders and the recognition that each will

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[132] Ibid., 8-1.

have different perspectives sets the conditions for the inclusion of setbacks, obstacles and even failure within the construct of getting results. However, clearly this doctrine is in support of an Army that must win on the battlefield. Failure may result in the death or serious injury of Soldiers. To this logic, the inclusion of the concept of risk as related to building organizational capability would set the appropriate context for the inclusion of the growth mindset.

The discussion of the competency of Achieves includes monitoring performance and involves both the recognition of performance and the improvement of performance. "High performing units are learning organizations that take advantage of opportunities to improve performance. Leaders need to encourage a performance improvement mindset that allows for conformity but goes beyond meeting standards to strive for increased efficiencies and effectiveness."[133] Here, we find the only mention of the word "mindset". Although included, this context simply implies a frame of mind or a focus towards performance improvement. That being said, this context further opens the door to including self-theory within doctrine.

At this point, it is worth reviewing the differentiation between theories. Entity-self theory (the fixed mindset) involves associating failure and setbacks with self-worth. Incremental self-theory (the growth mindset) involves associating failure and setbacks with the effort, focus, and dedication shown to accomplish the mission. ADRP 6-22 acknowledges the risk of the fixed mindset. "Too often, leaders unknowingly discourage ideas and subordinates are less inclined to present new ideas. Leaders respond to

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[133] Ibid., 8-3.

subordinates' ideas with reactions about what is and is not desired. This can be perceived as closed-mindedness and under-appreciation of the subordinate's insight."[134] This is a clear manifestation of the fixed mindset in practice. Entity self-theory has caused a leader to make a snap judgement as to the capabilities and capacities of a subordinate such that innovation and learning have ceased.

The competency of Develops is also littered with potential for the inclusion of self-theory. The themes of a long-term perspective, a positive environment, self-improvement, lifelong learning, developing subordinates, building teams, and stewardship of the profession would each be significantly bolstered by the inclusion of the growth mindset as a foundational principle and lead to the optimization of each of these efforts. However, the deliberate inclusion or discussion of this concept is not included. As such, the search must be broadened to determine if the future inclusion of this concept fits within the guidance of our senior leaders.

The forward to ADP 6-22, endorsed by the Chief of Staff of the Army, speaks less to the direct concept of getting results and more to broader concepts that lead to results. Leadership in today's operational environment

> requires personal commitment, constant learning, self assessment, and passion for your Soldiers and units. Being a leader is not about giving orders, it's about earning respect, leading by example, creating a positive climate, maximizing resources, inspiring others, and building teams to promote excellence. Along the way, you will make honest mistakes. You will face difficult decisions and dilemmas. This is all part of the process of learning the art of leadership. You must internalize the Army's values, demonstrate unimpeachable integrity and

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[134] Ibid.

character, and remain truthful in word and deed. Soldiers trust their leaders. Leaders must never break that trust, as trust is the bedrock of our profession.[135]

Within the construct of ends-ways-means, the use of self-theory as a way to achieve the ends outlined here by the Chief of Staff of the Army would significantly impact the goal of optimizing performance. The optimization of cognitive performance would become a natural outcome of incremental self-theory when applied to intelligence.

Growth and Fixed Mindset in the General Population

Dr. Dweck and Dr. Molden argue that the general population is evenly split among those that adopt a fixed mindset and those that adopt a growth mindset. In their book, the *Handbook on Competence and Motivation*, they argue that 40 percent of the population adopts a fixed mindset (entity self-theory) and 40 percent adopt a growth mindset (incremental self-theory) with the remaining 20 percent being undecided.[136] It follows that the U.S. Army is a microcosm of the general population and therefore reasonable to assume that the actual number of Soldiers who subscribe to the fixed and growth mindsets is not drastically different from what Dweck and Molden argue.

This is a significant finding. Even if the number of Soldiers and leaders with the fixed mindset is significantly lower, say 25 percent of the population, that means that as many as 122,500 of 490,000 Soldiers, NCOs and Officers in the U.S. Army have limited their ability to optimize cognitive performance.

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[135] Department of the Army, Army Doctrine Publication 6-22, forward.

[136] Carol S. Dweck and Andrew J. Elliot, eds. *Handbook of Competence and Motivation* (New York: Guilford Press, 2005).

Summary and Conclusions

ADP 6-22 states that "Army leaders must adapt their thinking, formations, and employment techniques to the specific situation they face. This requires an adaptive and innovative mind, a willingness to accept prudent risk in unfamiliar or rapidly changing situations, and an ability to adjust based on continuous assessment."[137] The incorporation of entity theory within the leader requirements model, either implicitly or explicitly, is a new technique that will enable the adaptation of thinking. It requires the acceptance of prudent risk as elements of failure are incorporated as part of getting results. Most importantly, the adoption of incremental self-theory encourages productive, positive adjustment when receiving continuous assessment of personal performance. In short, the fixed mindset is a hindrance to optimized cognitive performance, while Soldiers with the growth mindset will challenge the limits of their intellectual potential as a natural course of framing feedback and failure in terms of effort, drive and determination to achieve.

This study seeks to understand the relationship of self-theory to the concept of optimized cognitive performance by exploring the outcomes and lessons being taught at the Army's three primary commissioning sources. A review of academic literature and published, peer-reviewed research supports the assumption that the adoption of an incremental self-theory of intelligence is a prerequisite to achieving optimized cognitive performance. A review of the published outcomes, commissioning standards, and Army doctrine reveals that self-theory is not included within the graduation and commissioning requirements incorporated in the programs of instruction of the U.S. Military Academy,

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[137] Department of the Army, Army Doctrine Publication 6-22, forward.

ROTC, or OCS. However, complementary and related concepts are prevalent. The

conditions necessary for the incorporation of this concept are established. Nonetheless,

self-theory must be deliberately defined to be understood and to set the appropriate

context for lifelong learning and optimized cognitive performance. The growth mindset

will enable learners to be more self-aware. "A self-aware leader will learn from each

decision and action; with guidance from superiors, the leader will grow in confidence."[138]

In the pursuit of lifelong learning, this endeavor will prime cadets and candidates to begin

the process as early as possible in their career.

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[138] Ibid., 4.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The central task of education is to implant a will and a facility for learning; it should produce not learned but learning people. The truly human society is a learning society, where grandparents, parents, and children are students together.

In a time of drastic change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exists.[139]

— Eric Hoffer, *Reflections on the Human Condition*

Purpose

The purpose of this study is to understand the concepts of entity and incremental self-theory of intelligence as it applies to the U.S. Army Human Dimension Concept by exploring the inclusion of self-theory within the curriculums of the Army's three primary commissioning sources. This method enables this study to understand the relationship of those theories to the desired outcome of optimized cognitive performance. This outcome is further part of a larger desired outcome of optimized human performance and is directly related to recent, significant changes in the operational environment. It is a clear acknowledgement that warfare is innately human and an unambiguous recognition that the human Soldier is the foundation of the Army. This study has attempted to contribute to the effort of making Soldiers better learners and to encouraging the pursuit of lifelong learning by connecting the themes of optimized cognitive performance, a growth mindset, and emotional intelligence. In theory, this effort will have an impact on Soldiers

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[139] Eric Hoffer, *Reflections on the Human Condition* (Titusville, NJ: Hopewell, 2006, 1973), section 32.

and leaders on combat as they seek to rapidly understand, visualize, and describe their environment more accurately and rapidly while making critical decisions in pursuit of decisive objectives.

The purpose of this chapter is to outline the findings and implications of this study and to make recommendations as to how the growth mindset may be incorporated into Army programs of instruction. This chapter will summarize the fact that self-theory is not currently included within the instruction given at USMA, ROTC, or OCS, but how self-theory will easily nest within current practice. This chapter will further demonstrate how educators, instructors, and leaders may identify the fixed and growth mindsets within their students, trainees, and subordinates while showing how the adoption of this effort may serve as a low-cost change in practice with profound results.

Findings

A review of the defining literature on the topic of self-theory, as outlined in chapter 2 of this study, demonstrates the need to incorporate the concept of self-theory of intelligence within the Army's educational doctrine in order to achieve the goal of optimizing the cognitive performance in support of the U.S. Army Human Dimension Concept. The pursuit of these concepts throughout Army policy, regulations, and guidance governing the structure and outcomes of the three primary commissioning sources reveals many complimentary efforts, but no deliberate inclusion of self-theory with their curriculums.

As defined by Dweck et al., the measurement of self-theory is conducted by way of questionnaires that measure a person's agreement or disagreement with a series of statements that define their perspective on intelligence, morality, or any other domain.

This study pursued the inclusion of any guidance, policy, or regulation that would necessitate such an effort.

The purpose of BOLC-A is to transition civilians into professional Soldiers who adopt the Army Values and are able to perform each of the nine BOLC outcomes. BOLC-A cadre are charged with setting an appropriate example for cadets and candidates to follow and seek advice in the pursuit of Army standards and personal goals. The themes of self-discipline, adaptability, flexibility, problem-solving, and operating under stress all greatly compliment the growth mindset. The FY 15 CCTL calls for self-development, lifelong learning, self-assessments, and new learning skills along with other complimentary themes.

The same themes are found within at USMA, Cadet Command, and OCS. Lifelong learning, understanding the learning process, developing new skills, understanding how humans are influenced, resiliency, effective thinking, goal setting, mentorship, and coaching are all included, among others, in an exhaustive list of concepts and terms that contribute to the development of future U.S. Army officers. However, without the deliberate process of defining and contextualizing self-theory, the fixed mindset will remain a risk to the development of optimized cognitive performance at the organizational level. In short, the three Army learning organizations create a neutral effect on self-theory. They will neither create growth mindset learners nor fixed mindset learners. Unless individual mentors or learners become aware of the concept on their own accord, the organizations will maintain the breakdown of learners as found by Dweck and Elliot-Moskva: "In general, about 40% of our research participants consistently endorse

the fixed view and another 40% consistently endorse the malleable view, with about 20% remaining undecided."[140]

The Army Leadership Requirements Model defines an Army leader and serves as the foundation of Army doctrine on leadership. It serves as the basis of all three commissioning sources and every leadership-oriented lesson taught by the Army. "The Leadership Requirements Model conveys the expectations that the Army wants leaders to meet."[141] All Army leaders fall within the umbrella of lifelong learning and as such, the efforts of creating learners and leaders are intertwined.

The Leadership Requirements Model speaks of character and identify under the categories of attributes and competencies. The attributes and competencies of Presence, Intellect, Leads, Develops, and Achieves outline and define complimentary concepts, but self-theory is not explicitly captured. The outward impressions and resiliency of leaders is explained under the attribute of Presence. The attribute of Intellect addressuces concepts of interpersonal tact which compliments the development of emotional intelligence. The competencies of Leads, Develops, and Achieves discuss building trust, getting results over short and long-term objectives, performance improvement, positive environments, developing subordinates, building teams, and stewardship of the profession.

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[140] Carol S. Dweck and Elaine S. Elliott-Moskwa. "Self Theories: The Roots of Defensiveness," in *Social Psychological Foundations of Clinical Psychology,* ed. James E. Maddox and June Price Tangley (New York, NY: Guilford Press, 2010), 137.

[141] Department of the Army, Army Doctrine Publication ADP 6-22, 5.

This study sought to answer a primary and subsequent research question. Are Army initial-entry commissioning programs incorporating self-theories of intelligence into their curriculum and course outcomes in order to optimize cognitive performance? How can Army assessments encourage the development of a growth mindset? This study finds that Army policy and guidance governing commissioning sources does not directly address the concept of self-theory and will have neutral effects with respect to creating either a growth or a fixed mindset. Without the deliberate inclusion of this theory in a clearly defined and contextualized manner across all commissioning sources, the Army will likely experience trends analogous to the general population of the U.S.

In summary, the fixed mindset places limits on cognitive performance while the growth mindset raises the level of cognitive performance which may be considered optimal. The growth mindset, along with emotional intelligence, will directly contribute to increased organizational performance while creating innovative, adaptive, intellectually curious lifelong learners.

<u>Implications</u>

The deliberate decision to adopt self-theory as a foundational principle within the Human Dimension Concept will impact both the institutional and operational Army. Institutional Army training programs that will be impacted throughout all Centers of Excellence where programs of instruction are implemented to train, educate, and develop Soldiers, NCOs and officers of all ranks. A change to programs of instruction in this manner will require adjustments in Army doctrine and regulations such as the doctrine, regulations, and training guidance addressed in this study: ADRP 6-22, AR 145-1, AR 350-51, TRADOC Regulation 350-36, Cadet Command Regulation 145-3, the USMA

Redbook, and the OCSSOP. Additionally, Army leaders must educate the operational

Army through annual training guidance to FORSCOM units.

<div align="center">Recommendations</div>

The findings of this study naturally lead to the recommendation to conduct

questionnaires at the start of every TRADOC Professional Military Education

curriculum. The purpose of these questionnaires should not be to create an Army record,

but to inform the Soldier and his or her direct supervisor so that understanding and

mentorship may enable a change in mindset.

Mindset is a new focus area within Army research and literature. Future research

should expand this effort to focus on the measurement of self-theory associated with

specific curriculums and demographics throughout the Army to determine if trends exist

across different ranks. The Command and General Staff College is a prime target to start

this process and gain understanding before pursuing the same effort at other institutions.

Commissioning sources, NCO professional military education, and subsequently basic

training institutions are recommended as subsequent targets before expanding the effort

to the Total Army.

<div align="center">Summary</div>

As Dr. Dweck argues, "You need accurate information about your current

abilities in order to learn effectively."[142] In the same manner, you need accurate

information about your predisposition to lifelong learning and your ability to achieve

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[142] Dweck, *Mindset*, 11.

optimized cognitive performance. The key effort is to show that a learner does not have a fixed or a growth mindset, but has adopted a fixed or a growth mindset. It is an assumption. It is an assignment of meaning. Learners may change their perspective from a fixed to t a growth mindset based on the coaching, mentorship, and counsel of leaders, educators, and mentors. In light of the Army Profession and Ethic, Army Professionals will naturally seek a growth mindset when properly informed as they seek to maximize their abilities in the service of our nation.

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